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Editorial

THE REPORT of The National Review Committee on Higher Secondary Education, with special reference to vocationalization, titled 'Learning To Do', is out. Its subtitle, 'Towards a Learning and Working Society', resembles the title of one of R.M. Hutchins' books—'Towards a Learning Society'. As Prof. Malcolm S. Adiseshiah was Chairman of the review committee, this report would in future be associated with his name.

The Review Committee was appointed to examine the NCERT document 'Higher Secondary Education and its vocationalization' besides studying CBSE syllabi and courses and suggesting a plan of action for the introduction of vocationalization at the secondary and higher secondary stage.

The recommendations of this committee must be viewed against a frame given to it by the priorities set before it by the Government of India. The new Government is committed to provide employment to 70 million persons with 50 per cent of India's population living below the poverty line. The Committee has made it clear that "it is a hard and somewhat ambitious task". Rural development and adult literacy are two other sides of the total frame. The Committee has been realistic enough to give figures for Tamil Nadu where the unemployed graduates of ITI's touched the 30,000 mark in December, 1977. One cannot help sympathizing with the Committee whose job it was to furnish models of action. Within these constraints the report is commendably sensible and realistic.

For reasons explained in the report the recommendations are valid for the coming five years or for the duration of the Sixth Five Year Plan. The review Committee also debated on the issue whether to offer the vocationalized spectrum at Class IX or XI and decided in favour of the latter.

The Committee has recommended two patterns for the secondary level: the General Education Course and the Vocationalized Course. Both have the same time distribution for teaching, i.e. languages 15 per cent, Socially Useful Productive Work/General Foundation Courses 15 per cent and electives 70 per cent. In details the recommendations are refreshingly unconventional. For example, there are the 14 activities which all pupils under SUPW can take up irrespective of their subjects (electives) of study, among them small savings drive, organizing film shows, coaching children, adult literacy, etc. Similarly, the Vocationalized Course (Part A) includes the Gandhian Concept of Education, Agriculture in the National Economy, Rural Development, Problems of Urban Slums and Health, Hygiene and Sanitation. Part B comprises Small Scale and Cottage Industries, Entrepreneurship, Cooperatives and Credit Facilities, Marketing, Sales Promotion, Unemployment, Underemployment and Manpower Utilization of India, Human Relations, General Exposure to World Trends and Changes, and Environmental Protection and Development.

Under Strategies for Implementation, the review committee has suggested three models for adoption by schools·

(*i*) Those offering only the General Education Spectrum and its elective subjects;
(*ii*) Those offering only the vocationalized education spectrum and its electives,
(*iii*) Those offering both.

This recommendation is based on the logic of streaming and elective subjects. The third model will be the generality for the schools in the rural areas where the offerings will include some of the courses under General Education and parts of Agriculture and courses in related subjects. One hopes that the scheme is implemented as sincerely as it has been conceived.

As the details of this committee's report should be of interest to many, we are reproducing large chunks of it for their benefit. □

Formative Evaluation : Its Implications for Programmed Instruction in Foreign Languages

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THROUGHOUT THIS paper the term 'formative evalution' is being used in a somewhat restricted sense to refer to the feedback and diagnostic aspects of evluation

While acknowledging the tremendous potential that programmed instruction has for the teaching of foreign languages one has to concede with regret that it has failed to gather adequate momentum in our educational system. Even if economic considerations are ignored, programmed instruction for comprehensive package courses for foreign languages do not appear to be feasible for the following reasons :

(a) The programming for such courses would be too unwieldy without some firm commitments for collaborative effort on a large, well-organized scale,

(b) The low level of foreign language competence (here and elsewhere in the paper 'foreign language' is used with English in mind) would restrict the bulk of the instruction to *linear* rather than *intrinsic* programming, adding further to the emormity and complexity of the task. The fact that the content and the medium of instruction are inseparable in language instruction, would only add to the problems of the programmer;

(c) The absence of any kind of national averages in terms of test scores and a uniform course of study for English in our secondary schools would make any assumptions of entry behaviour highly unreliable,

(d) A dearth of programmers who

> are at once willing *and* able, would perhaps hold up any ambitious project for a comprehensive language course through programmed instruction

For the present, programmed instruction in our country must necessarily be confined to specific areas of difficulty encountered by foreign language learners. To this end, it is necessary, first of all, to diagnose reliably the actual areas of difficulty for a large percentage of learners and secondly, to appreciate which of the difficult areas are encountered more frequently and whether they lend themselves better to linear or to intrinsic programming

Any attempt at diagnosing the areas of difficulty at the phonological, morphological, or syntactic levels will reveal that barring a few pan-Indian features (especially in spoken and informal English) those areas of difficulty that are to be seen as variations from standards of acceptable English are regional in character. Difficulties encountered by learners in Eastern India are not necessarily the same as those that the South Indian learners face. To a large extent this regional variation is attributable to L_1 habits being transferred to the target language. A few examples would be in order.

Phonology

(*i*) While most Indians have difficulty in producing the labio-dental fricative /v/, even the variant form differs from one part of the country to another. In Assam, Bengal, Orissa, Bihar, parts of U.P. and Gujarat /v/ is realized as $[b^h]$, whereas in the Southern States and Maharashtra /v/ → [w] Thus while the difficulty in producing the sound is faced by Indians all over the country, the inaccurate forms themselves vary from one region to another.

(*ii*) While most Indian speakers have difficulty in producing the terminal syllabic cluster in a word like *simple*, the inaccurate forms vary considerably in themselves. In most cases the cluster is produced with the introduction of a vowel sound which may be [ω] in Assam, [ʊ] in Bengal, [ʌ] in the northern states and [ə] in South India The average Keralite who is often able to retain the syllabic nature of the cluster without introducing any vowel sound, neutralizes the voiceless stop to the voiced one and accompanies this by a slight retroflexion of the /l/.

(*iii*) Epenthesis of most initial clusters beginning with /s/ makes use of different epenthetic vowels as in [is'ku:l] and [əs'ku:l] for *school*, but the intrusion of a vowel after the initial consonant is quite common in certain parts of north India in realizations like [səku:l] (*school*) [sukuwe:r] (*square*), and [sətśsən] station.

(*iv*) Past tense realizations like [hʌggəα] hugged and [miss'e'd] (*missed*) are also regional in character

Morphology

Here the problems relate mainly to the selection of things like the correct negative prefixes and verbalizing and nominalizing suffixes for words. Here again regional differences are noticeable. The tendency to use -fy /-fai/ for impossible verb formations is peculiar to certain parts of the country and sometimes extend even to words in Indian languages Likewise the tendency to introduce a bound morpheme for pastness where its zero allomorph is operative is seen in an utterance like : 'My wife's operation costed me a lot of money'. While this is not exclusively a regional feature, it is not really a national one either.

Syntax

Here one notices a certain similarity in the problem areas all over the country. Imperfect question forms with lack of inversion, a standard 'isn't it ?' tag for all tag questions, substituting clauses beginning with 'because' for sentences and repeating adverbs as we do in most Indian languages ('Slowly slowly he cleared all his debts') are pan-Indian features that readily come to mind But while the use of the lexical verb have (indicating possession) in the present continuous tense ('He is having seven children' or 'He is having two houses in Bangalore') is a variant found all over India, certain deviations like the use of the so-called future tense for referring to habitual action, are regional in character and directly attributable to a transfer of L_1 habits to English.

These regional variations strike at the very root of the myth that we have a variety of English that could be called Indian English At best we perhaps have east south-north-west and north-Indian English, but none of these by itself would qualify to be called Indian English. In using English the deviations from accepted standards that are peculiar to each region have been perpetuated and consolidated by generations of teachers and educated users of the language. What is worse, most of them innocently labour under the delusion that they get pretty close to internationally acceptable standards Unflinching loyalty to grammars of English written more than half a century ago merely aggravate an otherwise remediable situation These regional deviations from acceptable standards merely help to underscore the fact that one cannot think of a standard set of programmes that will be equally useful for the entire country. Thus it is imperative for programmers to direct their attention to need-based programmes and projects rather than confining themselves to assumed areas of weakness which they feel like tackling merely because *they* feel competent to do so. This leads to the qestion of evaluating these needs.

Pre-tests to evaluate entry behaviour and post-tests to evaluate the programme itself as well as the achievement of the learners, are standard practices in programmed instruction. But even in advanced countries, in the case of programmed instruction for foreign languages such evaluative measures have been based on the assumption that the learner is familiar with a language which has an accepted standard colloquial form, and therefore all that the programmer has to guard against is the tendency of the learner to transfer the habits and patterns of that language to the target language. In other countries it is thus a question, for instance, of preparing a programme for the American learner who wishes to acquire French or for a German who is trying to learn Spanish or Russian. Even in such relatively uncomplicated situations, one is not really convinced that the programmer always bears in mind the areas of difficulty that are a result of L_1 interference. In any case, he is free to nourish ambitious plans with regard to intrinsic programming since he is justified in assuming that the learner knows his own language reasonably well. The programmer therefore has access to a medium at least for those sequences where he is trying to get the learner to search for the rules.

The Indian context makes the task of the programmer far too difficult. He is, in actual fact, faced with the task of preparing programmes for English to be used by learners whose L_1 could be Tamil, Kashmiri, Marathi or Assamese. Under the circumstances he has the option of either restricting himself to linear programming or to preparing programmes in a wide variety of Indian languages. While it might be desirable to use intrinsic programming for reasons of economy of effort and also for the interest and challenge that it holds for the reasonably intelligent learner, the merging of content and medium in language teaching rules out the use of intrinsic programming in the Indian context. Neither can one envisage a crusading zeal among the programmers which alone could result in programmes for English being written in all the Indian languages. For the time being, therefore, we must be content to restrict ourselves to linear programming once we are able to decide what area of difficulty could be profitably programmed. Even so, it simply will not do to embark on any ambitious plans for programmed instruction since assumptions regarding entry behaviour are likely to be questionable in the absence of valid and reliable evaluative processes. Even the standard pre-tests to determine entry behaviour are only of limited utility in our country where we have to contend with widely varying language abilities at the end of the secondary stage (or any stage for that matter)

For these reasons the programmer in India is obliged to resort to more painstaking evaluation in order to arrive at reasonably reliable assessments of the entry behaviour of learners from particular regions of the country in respect of certain specific areas of the target language. This would perhaps be possibly through formative evaluation of would-be learners at some pre-determined stage (for instance, at the end of Class X in the new 10+2+3 set-up). To be really useful, such evaluation should consist of (a) a series of diagnostic tests, (b) an achievement test at the end of ten years of schooling, coupled with (c) an elaborate scoring of (a) and (b). This would include a very elaborate error analysis of the responses made at the achievement test (in this case perhaps the school final examination). Failing this it would perhaps do to have an achievement test followed by an error analysis of at least 1000 randomly selected answer scripts. This could be supplemmented by a further test in written composition using the initial feedback available from the error analysis to determine the design of the test. (There is some justification in insisting on a test on written composition that elicits short-answer type of responses rather than on objective items The emphasis here is on the supply type response rather than the selection type. While objective items in language testing are useful, they have their place. They often give us a clue only of the learner's knowledge of the elements of the language. For purposes of determining entry behaviour this is perhaps inadequate and fails to give us a proper perspective of his performance. A mere knowledge of the elements of the language is analogous to the ability to undertake a pre-flight check of the controls and instruments in the cockpit of an aircraft without necessarily being able to fly the plane. It is the ability to fly that we are concerned with. For this a test in written composition is essential.

Such a scheme of formative evaluation

would be useful in assessing:

(*a*) the areas on which programmes are likely to be of utmost use as remedial instruction;
(*b*) the entry behaviour of the would-be learners;
(*c*) the most suitable type of programming (linear, modified linear, intrinsic, etc, and the ideal number of entry or re-entry points to any difficult sequence in the programme),
(*d*) how much time a certain set of sequences (and hence the entire programme) is likely to take.

Apart from all this, such formative evaluation would also enable a more reliable comparison to be made between the entry behaviour and the terminal behaviour, which in turn would ultimately lead to a proper evaluation of the programme itself.

Since error analysis forms such an important part of the formative evaluation proposed, one is ultimately concerned with the mechanics of such an analysis. Many such analyses have been undertaken but hardly with the objective of providing any feedback for programmed instruction. Pit Corder's Scheme for error analysis in Volume 3 of the *Edinburgh Course in Applied Linguistics*, (Oxford University Press, 1974) might serve as a very useful model for any one with such a project in mind. A card index system is indispensable in any major project on error analysis for proper handling and subsequent classification of data. An ad hoc substitute for such a project on error analysis is for the teacher to prepare cards (over a period of time) that give remedial instruction to the pupils whenever an error is committed in their regular school assignments. These cards grow out of the errors found in the assignments. The teacher marks such errors on a card, gives the correct form below the correction made and then proceeds to consolidate the correct form with the help of a few examples. This is followed by a brief statement of the operative rule(s). All this is done on the card. Once an adequate number of cards has been written out, the teacher undertakes remedial work by lending to each learner the appropriate cards that deal with the mistakes in his assignment He is then required to submit another assignment where he states the main points of the operative rule(s) and follows up with a few correct examples of his own with the assistance of the cards In course of time, the teacher, apart from doing useful remedial work for his students in a systematic manner, is in a position to evaluate the major areas of weakness on the basis of the frequency with which certain cards have had to be issued to the students for remedial work. This in itself constitutes a kind of formative evaluation that can be usefully employed to indicate the areas on which programmed instruction can profitably concentrate.

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The Problematic Territory of Jean Piaget and Adolescent Thought

N. VAIDYA

SINCE MAN has always been a ceaseless enquirer into scientific, technical and social studies, his concern for the development of children, teachers and teacher-educators is growing in importance. Educational ideas, like scientific probings, did not develop in a vacuum, and they have their principles 'rooted in the wisdom of the ages,' traced back to the ancient Greek thinkers like Socrates and Plato. Since then the ideas of many great thinkers, representing different disciplines, have been woven into the fabric of current educational philosophy and practice. And Jean Piaget drew heavily from this great philosophical reservoir. While doing so, he appears to have paid back his ancestral debt abundantly in his own lifetime. For it is impossible to imagine today a cognitive study without any reference to his work. Whether one agrees or not, a dip in the 'Ganges' of Piaget does affect one's outlook on educational problems. Why? Because he presents a series of challenging syntheses as obtained in the rationalist tradition of Plato, mental categories of Kant, the Bergsonian notion of perceptual change, the findings of Gestalt psychologists like Max Wrtheimer, the use of logic for interpretation of thinking (classes, relations, grouping, reversibility and equilibrium), and in the revelatory statements made by personalities like Calvin, Rousseau, Pestalozzi, Claparede, Binswanger, Bleuler, Rorschach, Meili, Jung and Sechehaye (4)

Philosophical problems present themselves to the philosophers, perhaps in the true tradition of their beloved field of enquiry, in unsolvable form (3). Piaget, while still remaining a firm speculator, succeeded in psychologically tackling an age-old epistemological problem as enunciated by Plato · "How and when can man be sure that his knowledge is true knowledge, when time and again he finds that what he took to be knowledge has proved to be error" (1). In this, he not only substituted the fairly well-established scientific procedures with his own *Methode Clinique*, but also constructed his own symbolic logic for interpreting intellectual operations as they develop from the very early childhood to late adolescence. He thus showed how a child, nay, a 'universal child,' goes about the business of constructing his own house of knowledge. Continuously challenged by this problem over a period of forty years, he came up with this grand hypothesis:

> Development is continuous not only within the individual but throughout all evolutionary levels. From the biological to the social to the intellectual levels, the unity of nature is preserved. The functioning of the loveliest mollusk is based upon the same fundamental processes as that of an Einstein (2).

The Nature of the Problem

Thinking is a 'ghost'-like activity, for it has to be inferred rather than observed. In literature, it has been referred to as "abstracting, analysing, comparing, deducing, defining, discriminating, estimating, generalizing, guessing, imagining, judging, knowing, opining, reasoning, recalling, recognizing, reflecting, remembering, searching for conclusions and understanding" While going ahead, one has to cross the territory of 'concept formation,' which again turns out to be a vast area of investigation in its own right, having strong links, but not identical with, such complex psychological processes as thinking, learning, problem-solving, language acquisition and symbolic representation. If this journey is further continued, one enters the complex areas of problem-solving, creativity, critical thinking and originality, where one is usually caught in a quicksand pit of definitional difficulties. One is very lucky, if for every milligram of information, he spends a quintal of effort. And at this point the distinction between original sense and original non-sense disappears.

Not long ago, the nuclear scientist Oppenheimer aptly remarked: "It is the business of science to go wrong". Difficulties for the cognitive psychologists, therefore, go on multiplying, and for achieving success, problems have to be posed more and more productively in the phraseology of Gestalt psychology with a view to investigating the complex processes of thinking, which may ultimately lead to the development of understanding, generalization, discrimination, concept development and attainment. The problems, however, do not end here, because the researchers and the practitioners do not invariably ask the same question. These split-questions, and possibly the consequent split answers, are bound to appear in the business of any science, educational psychology being no exception. The workable solution under these circumstances lies in considering the two in isolation as is frequently done in meeting the anomalies in science The basic problem here is to relate the most significent concepts of science to the mental development of children whose answer goes a long way in providing the psychological structure to any one of the school subjects. Thanks to the recent efforts of Ausubel, Bartlett, Beard, Bruner, Flavell, Gagne, Guilford, Hans Furth, Hearnshaw, Humphrey, Inhelder, Lovell, Lunzer, Peel, Kraplus, Piaget, Schwab, Skinner, Suchman, Vernon, and Wallace, the problem-territory in this decade has been sufficiently explored and consequently, the problems in pieces—like the discovery of fundamental particles in atomic physics—lie more in the zoo rather than in the jungle.

This was hardly the case over twenty-five years ago. The emerging literature on thinking clearly tells us that children learn spontaneously, and they acquire schemes of thought regardless of school influences. They learn from each other, and learn equally well in formal situations. At the same time, they also possess first hand knowledge about men, and their affairs in the immediate environment. This, however, does not amount to saying that the sun rises in the east or sets in the west It only means that the child's thinking is not at all a chance or random behaviour. It is sensible, intelligible and predictable against the available theoretical psychological constructs(3)

Problems Posed in the Field

In this perspective, the field as a whole poses the following problems which overlap each other to varying extent:

(*i*) Specifically speaking, what are those conditions under which learning takes place maximally? What exactly is the role of hints and clues either in supporting thinking or in the formation of concepts? To what extent can concepts be downgraded?

(*ii*) At what age is formal reasoning manifested among different categories of pupils? How is formal reasoning different from concrete reasoning? What are the conditions that determine transition between the two stages?

(*iii*) How is thinking generalized in each of the two grades? Does it develop in stages? Is it possible to accelerate stages? What is the role of planned experiences in concept development and problem-solving? Is creative thinking also influenced as well?

(*iv*) Does 'instruction precede development' (L S Vygotsky)? Is learning to take place mechanically or from page to page within the textbook? Or, is it possible to save children from subsequent teaching, once the initial learning has been fully acquired? Quoting J S. Bruner "Is it possible to get a maximum of travel of what we have learnt?" If so, what kinds of thinking processes does training generate under different conditions? Are they the same as the preceding ones or are they different? Are they of temporary or of permanent character?

(*v*) What errors do the children exhibit at various age levels? Are they, psychologically speaking, interpretable? Is it possible to develop a museum of these errors? Is it possible to demolish this museum through intervention? What is the role of maturity in this connection?

(*vi*) Is learning possible in the absence of schemes of thought in relation to academic subjects taught at school? Do these schemes of thought have any psychological existence or relevance?

(*vii*) Why do the children fail to verbalize their concepts or methods of procedures, especially when they have, in fact, acquired them?

(*viii*) Lastly, how do the children coordinate information? What are the underlying mechanisms? Have they strong links with symbolic logic? Are they of any psychological significance as well (4)?

Analysis of Adolescent Thought

The writer investigated adolescent thought with the help of specially designed problems (N=17), each inhering a continuous chain of reasoning (5) This study, using the case study approach, also attempted to delineate the structure of the various hypothesized schemes of thought factorially. In this field experiment, 200 pupils (100 boys and an equal number of girls) studying in Grades VI through X matched on intelligence and socio-economic status were observed, solving a series of seventeen different problems in two sessions. The main findings of this study indicated that.

(*i*) Except occasional fluctuations, average performance on each problem increases with grade. Mean performance in most of the cases favours boys rather than girls. But both boys and girls try hard to equalize their performance as they move into higher grades.

(*ii*) A given problem, or a part of the problem, or a process in that problem, is solved successfully (or failed) over a wide I.Q. range both within and across the various grades.

(*iii*) A given problem is solved in stages. It is possible to identify stages in the solution of any problem.

(*iv*) Unexpectedly, pupils commit a large number of errors while engaged in problem-solving. These errors further increase in the higher age-groups when they fail to grasp the main requirement of the problem. Among these errors, the dominant ones, shared by more than 15 per cent of the pupils, largely speaking, suffer "a hump" before they finally decline with increasing grade

(*v*) Contrary to Piaget, pupils are not in a position to exhaust or suggest all possibilities. combinations and tests. Over three-fifths of the pupils from Grades VI to VIII are badly affected when a problem inheres reversibility in thinking.

(*vi*) The complex problem-solving processes arise from simple thinking processes.

(*vii*) The role of the nature of the problem being critical in investigating thinking, the adolescent pupils, contrary to Piaget, are affected to a great extent by the content of the problem.

(*viii*) Although the adolescent pupils are in a position to set up hypotheses, they are not in a position, contrary to Piaget, to test them, which shows that their minds have not yet become experimental. Most of the adolescent pupils do not, contrary to Piaget, possess schemes of proportion as well as generalization to algebraic symbols.

(*ix*) When a problem is solvable through two schemes of thought, one inferior and the other superior, and if the latter is not well developed, the resort to the former may favour quite a few in solving that problem In case both are conspicuous by their absence, there is little chance for the supplied hint or illustration or even analogy to be utilized in solving the problem successfully.

(*x*) Except occasional fluctuations, the mean performance on the various schemes of thought shows an increasing trend with grade When mean and standard deviation are kept at 20 and 3 respectively, the gains in terms of T scores over the five-year period are dismal, implying thereby that they are slow and laborious as they evolve across the grades.

(*xi*) Using Principal Component Analysis on the combined matrix, containing forty-five variables and the varimax rotated factor structures with a view to obtaining the hypothesized factors and interpreting them psychologically, the following multiple factors appeared

(*a*) Schematic Learning General
(*b*) Adjustment
(*c*) Problem Orientation
(*d*) Sensing Problems
(*e*) Symbolization
(*f*) Testing Hypotheses
(*g*) Using Constant Difference
(*h*) Aspect Character
(*i*) Seeing the Problem as a whole

(*xii*) The top group differed from the bottom group on all the five measures of adjustment, understanding of the problem and all the seventeen schemes of thought. They, on the other hand, did not differ significantly from each other in respect of the following variables: felt difficulty of the problem, confidence in the problem and interest in the problem

At this stage, it is necessary to highlight an interesting finding, hardly looked for, in this investigation. It has appeared in several contexts: supplying an answer already available within the body of the problem, last item requiring an arithmetical or algebraic answer, counting the total number of trails or efforts made, returning to the same step after suggesting other steps; and the number of arbitarary and extraneous considerations brought into the problematic situation during problem-solving. Why should these errors suffer a "hump" in the face of increasing understanding with age? Is it the case of a lack of seriousness on the part of the adolescent? Is it the case of the adolescent being caught between the horns of a dilemma and getting murk? Is it the case of the adolescent trying hard to close in on the problem very slowly through steps totally irrelevant to its solution? Does it exemplify, suggesting in the process, that mastery over a thought process is through a path uphill, thorny and often erratic? Or, does the adolescent regress as if on an adventurous Piagetian journey during which, unaware of the logic he is using, he is trying hard to educate himself, thinking that the right path to concept development lies in flourshing an experimental failure? Or alternatively, is it a case of rubbing his schemes of thought wrongly, especially when he has personal reservations about his self-acquired knowledge in contrast to school learning which does not set right his firmly held self-centred thoughts? It is anybody's guess In a personal communication, J S. Bruner, who had encountered this phenomenon earlier and had not followed it up, had this much to say:

> The type of error that you refer to, which we speak of as growth error, is one in which the growing child tries out a new strategy although it is not well developed and uses it in place of an older one which has been working well. It is errors of this sort which suggest to me the venturesomeness of learning during this early period, that human beings are willing to shift to a less certain and more powerful strategy before they have it under control in preference to one which is safe, sound and dull (5).

Only a longitudinal study, however, is going to establish this Brunerian hypothesis. Returning to the "hump" effect, in serial rote learning, it appeared in the form of a 'bow' when frequencies of errors were plotted for a group of subjects engaged in learning each item in the Serial Position Effect. In the present context, the problem arises: Does the 'hump' effect exist at the lower stages of mental development as well? If so (and it is confirmed), a short tunnel to learning may be obtained, which may be theorized upon like the theory of fermentation. If effort in this direction is successful, the required fillip may usher in the second psychological revolution in learning consistent with the spirit of educational technology, especially when the second scientific and industrial revolution is picking up very fast in our country.

The investigation of human thought processes in all their varied aspects is a complex task, so both problems and acts of problem-solving are bound to appear refractory, both to the psychologists and the method specialists. Their troubles are bound to increase still further even when there is no unanimity in the published reports on the very definitions of thinking, concept-formation and problem-solving. Also how an experimental situation is to be finally selected and approached has not been discussed in detail in the literature in this field But these difficulties, present to a varying extent in all research works, should not discourage the future investigator Over two thousand years ago, Plato talked of breaking the problem at its joints. And it is aptly put forward by Hyde, the opportunity for that has just arrived.

There is scope for all: the clinical psychologist can study the abnormal functioning of the structure, the educationist can probe into the effects of training on mental growth, the sociologist can investigate into the effects of environment on individual differences. The value of knowledge that may eventually result from his work, directly or indirectly, is incalculable (6).

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Basic Education in Social Perspective

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"NO SYSTEM OF EDUCATION", says Acharya J B. Kripalani, "can be properly appraised and appreciated unless it is studied in connection with the ideas and ideals which it represents"[1]. The Soviet system of education can properly be understood only in the light of the philosophy of Marxism and Leninism To gain insight into the British system of education, it is necessary to have the correct perspective of the synthesis between progressivism and conservativism which the Butler Act tried to achieve. In the study of education, things outside the school matter more than the things inside. But Basic Education was examined by its critics in isolation, as a thing apart from its social context, with unseemly haste, they dubbed it anti-modern, reactionary, medieval and craft-ridden. It is time we gave the scheme the consideration it deserves.

For Gandhiji, literacy, numeracy, and technocracy (or developing proficiency in certain productive crafts, were not the right aims of education. He saw them as the means to build a new social order and develop a new type of personality. The society he had in mind was to be non-acquisitive, non-competitive, non-exploitative decentralized and, therefore, truly free. The men he visualized as products of his system were to be self-supporting, self-sufficient and contented. They would love truth, would not shun labour and have good will for all. The success and failure of Basic Education should be judged by the above criteria, and not by certain popular predetermined notions. This paper is a modest attempt in this direction.

All over the world, free universal education has come to be recognized as the most effective instrument at the disposal of the state for moulding the lives and opinions of the younger generation in such a manner that they come to defend an indefensible status quo. The schools indoctrinate children into acceptance of an iniquitous social system despite the frequently repeated claim that teaching is non-political[2]. The state pays for the universalization of education, and according to "the doctrine of financial paramountcy"[3], exercises control over it Education thus reflects and tends to promote the interest of the ruling class. It supports and maintains the establishment and perpetuates the existing social order, by making students docile and uncritical. Mankind has witnessed the catastrophic results of this education. It has, however, failed to learn lessons from history. Gandhiji was fully aware of this situation and decided to free education from the clutches of the state and therefore suggested alternative financial resources. His advocacy of voluntary contribution for educational finance should be judged in this perspective.

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[1] J.B Kripalani, *The Latest Fad*, p 3

Apart from the state, only three alternative financial avenues are left for education: financing by the capitalists, which can be equally dangerous, financing by the local community, which is not practicable in the underdevloped, illiterate and poor societies of the third world, and financing of education by the school itself. Gandhi recommended the third alternative and suggested that the expenditure on education should be met from the sale of goods that are produced in schools. His objective was not merely the development of the productive potentiality of children, which in itself is an important aim of education. His real goal was the preservation of freedom and autonomy of the institution of compulsory education, which is threatened everywhere in the world. A free society can be built by free education. His critics, however, failed to see this.

Industrialization, with all the spectacular achievements to its credit, has not succeeded in solving the twin problems of poverty and unemployment. Material wealth has undoubtedly increased, but it has left the affluent man spiritually impoverished. With the big industries have developed the slums where men live in pitiable conditions. Man has become alienated and anonymous and society is deteriorating into a mob. Riches have increased but at the same time the number of people living below the poverty line has also grown The centralization of wealth has led to economic wastage, artificial scarcity, cut-throat competition, exploitation and class war. All these are the major symptoms of a sick society. Gandhi anticipated and dreaded this ugly and dehumanizing situation and suggested an alternative technology for a new industrial order. He wanted to turn schools into training centres for the workers of the new society.

Unemployment is not only an economic problem, it is a great social malady which has a demoralizing effect on human personality, An unemployed person has no real opportunity for the expression of his creative potentiality. Poverty gives him no respite from worry. The man who has no chance of obtaining work lives in a desperate situation. He is deprived of the nourishment which work provides[4]. Work gives self-direction to man, strengthens his will, trains his faculties and furnishes an excellent background for the expression and development of personality. By means of Basic

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[2] **Ivan D. Illich, *Celebration of Awareness*, p 101**

[3] **J K. Galbraith, *The New Industrial State*, p. 285**

[4] **E.F. Shumacher, *Small is Beautiful*, p. 50**

Education, which offers opportunity for productive work, Gandhiji attempted to solve the problem of unemployment and experimented with a new method for the development of the human personality.

Craft, involving productive work, as an ingredient of education, integrates the world of knowledge and the world of work, an aspect which many philosophies of education ignore. The integration of learning and labour is essential for the development of human beings It gives a concrete shape to what one learns and simultaneously improves the quality of what is produced. The elitist and class-based education of today has been designed to perpetuate class distinctions The rich receive book-learning and the poor are expected to remain satisfied with manual work. The result is that qualities like hard work, dignity of labour and morality get rather a low priority in the educational system and the distance between the education of have's and have not's goes on increasing.

Modern education is too formal. It is cut off from the realities of life It is oppressed by the tyranny of words It is information-based and passive For the teacher, imparting education has become an act of depositing in which the students are the depositories and the teacher is the depositor[5]. Both maintain their separate entities without entering into the life of each other. Education takes place when the teacher and the pupil share life together. Basic Education is an antidote to the excessive verbalism in education. It provides an opportunity for the non-formalization of the educational process, and enables the students and the teachers to come closer; the monotonous elements are thus removed from teaching.

The modern industrial society, the evils of which have become too evident and to which alternatives are being sought, would be sustained by its educational system even if vested interests made no attempt to maintain it.

The industrial civilization and modern technological education are the two aspects of the same social process One cannot survive without the other. They are intertwined and complementary Basic Education is an antithesis of modern industrialism. It works from within and will cleanse the system by bringing radical changes in the methods, the techinques and the modes of production

Centralization, which inevitably breeds violence and thrives upon it, was another evil which Gandhiji wanted to abolish, as it leads to an unjust hierarchical order, curtails liberty, and by streamrolling opposition produces anti-democratic trends. Its ultimate result is a police state, a undiversified and homogeneous social order and a life of unrelieved monotony. Basic Education, which finally aims at the establishment of autonomous and self-governing village communes, would weaken centralization, economic and political

For the full flowering of man's vitality and creativity freedom is essential, which adds to the warmth of social relationships. However, human freedom has been enormously curtailed during the modern age The forces that obstruct it are present in the social arrangement, also they are the results of a mistaken philosophical attitude. The social factors which limit freedom are mainly three the state, the capitalist system and the gigantic monolithic organizations which have recently developed due to the modern political and economic changes. If man is to achieve freedom, his power needs to be controlled. In a craft-practising society, with a decentralized economy and political institutions and self-supporting individuals, the ideals of Gandhian education and philosophy will equip men to resist social forces that undermine their freedom.

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[5] Pavlo Freire, *Pedagogy of the Oppressed*, p 45

One such force that works at the personal level is the multiplication of desires in the present consumption-oriented society. The multiplication of desires is inimical to wisdom. Their gratification makes rational decisions impossible Desires bring bondage and dependence on outside forces over which one cannot have control[6] Gandhiji, therefore, suggested that desires should be kept within reasonable limits [7] Basic Education, with its ideals of plain living and high thinking, creates conditions which make for greater freedom.

"A major problem of our society", says Paul Goodman, "is the defective structure of economy that advantages the upper middle class and excludes the lower class"[8]. This injustice is injected into education also, which puts at a premium upper-middle class values, morals and ways of life The result is that the poor child suffers both at home and school: equality of educational opportunity is denied him. Basic Education, by recommending craft-training for all, attempts to eliminate class distinctions in education and brings about equality of educational opportunity. Ultimately it will lead to the abolition of all unjust privileges from society.

Any programme of social revolution, if it is to succeed, must begin with the schools as they are the institution of modern society with which everyone is concerned Gandhiji correctly visualized this situation and shocked the world with the novelty of his ideas in the field of education. If he failed as an educationist it was not his own fault but because we did not try to understand his ideas. We forgot their essence, observed the rituals and turned his philosophy into a dogma. □

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[6] E.F. Schumacher, *Small is Beautiful*, p. 29

[7] J.B Kripalani, *Gandhi. His Life and Thought*, p 369

[8] Paul Goodman, *Compulsory Miseducation*, p. 12

Towards a Theory of Science Textbooks: Some Frame Factors

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TEXTBOOK-WRITING is an art as well as a science. It is an art in the sense that it demands creative ability of the author, who must give the book form and colour. It is a science because it requires a well-thought-out plan and a systematic presentation of content to evoke the predetermined response. But what are the responses or behaviours considered desirable in a course of study, say of biology? What sort of curriculum will be appropriate to develop those behaviours? What strategy of teaching would best suit the curriculum? What type of teaching-learning material would facilitate the process of learning? How best to develop such material, say a textbook, as an effective tool of teaching and learning? For an answer to these questions, we may go to the theories of science education which serve as a foundation for developing a theory of science textbooks as well.

Framework

Observations and facts about a phenomenon are accumulated in the course of scientific inquiry. Based on this, empirical laws are formulated If these laws are within the framework of an already accepted conceptual structure the investigator is no longer interested in further accumulation of knowledge as he is engaged in "stable inquiry" (Schwab, 1962). When an accepted conceptual structure in an area of inquiry is not there or it is challenged by new findings, the researcher is interested not only in finding new principles but also in developing some theoretical models to explain, interrelate and accommodate those phenomena Here he is engaged in "fluid inquiry" according to Schwab. Methodology of writing science textbooks is one such area of inquiry which lacks a conceptual structure or a frame of reference In the absence of such a framework it is difficult to identify principles and propose theoretical models to explain the qualities of a good textbook.

Writing textbooks, we find, has not received the needed attention from curriculum developers In the absence of a framework, by and large, the quality of a textbook is determined by the whims, fancies and competence of the authors This is why, more often than not, textbooks reflect conflicting viewpoints or different aspects of the same model of writing a textbook. An attempt is made in this paper to build up a rationale for preparing science textbooks, identify frame factors and develop a point of view

Assumptions

A science textbook, like any other textbook, is addressed to the learner and as such it must meet the needs of the learner. It acts as an instructional aid to the teacher to facilitate teaching. It must, therefore, organize its content in a manner that suits the teaching-learning situation Since it is a basic learning material related to a particular subject, it must reflect the nature and structure of that discipline Thus our assumptions must be rooted in these three foundations of a textbook, the learner, the discipline and the teaching-learning situation. Keeping in view the psychology of learning, some major assumptions like the following may be made under each head. Such assumptions must be consistent with our knowledge of the psychology of learning.

LEARNER

1.1 The learner feels motivated in the material if it is interesting and meaningful to him.

1.2 The learner grasps the learning material more quickly if it is within his comprehension

1 3 The learner can retain and reproduce more easily what he has learnt if he identifies relationships among the various components of the subject-matter he reads.

DISCIPLINE

2.1 Every discipline has its specific structure, both substantive and syntactical.

2.2 The structure of a discipline can be identified and taught

2.3 Every discipline has its own values, objectives and tools of inquiry which direct and control the furtherance of knowledge in that field

TEACHING-LEARNING SITUATION

3.1 Goal-directed activities promote better learning.

3 2 Knowledge of student's entry behaviour facilitates teaching

3.3 Objective-based teaching promotes better learning

3 4 The learner's involvement in the teaching-learning process improves his learning

3 5 Regular feedback of a pupil's performance improves his achievement.

Structural Components

A science textbook can be viewed in terms of the content, technique of presentation and format as indicated below.

1.0 *Content*	2.0 *Technique*	3 0 *Format*
a. Text	a. Planning and organization	a Textbook design
b Quotations	b Content selection	b. Morphology of each chapter/unit
c. Footnotes	c. Presentation of content	c Type and placement of illustrations
d Annexures	d Quality of illustrations	d. Placement of review exercises
e. Review material, etc	e. Use of evaluation material, etc	e Position of prelims and back-pages

If we take these structural components, etc. like format, some of the assumptions listed above can be related. For example, for type of illustrations (3c) one has only to go back to (1 1) (1 2) and (3 4). Similarly, in content, emphases on 1 a, 1.b, etc. would depend on certain assumptions under 1.0, 2.0 and 3.0.

Each of the three areas listed above can be further analysed to visualize the operational limits. For example, the text, under content, can be further split in terms of its organization and presentation. One way of doing it is as under.

A. *Classification into*	B. *Pattern of*	C. *Focus on*	D *Complexity of*
a. Parts	a Introduction	a Facts	a. Concepts
b. Sections	b. Development	b. Concepts	b. Illustrations
c Chapters	c. Summary	c. Themes/ conceptual schemes	c. Style of writing
d. Units, etc	d. Review exercise, etc.	d. Principles, etc.	d. Scientific vocabulary, etc.

Likewise we may identify different aspects of techniques and format of the textbooks.

Functional Components

As pointed out earlier, a good textbook in science must meet the requirement of the learner, the discipline and the teaching-learning situation Analysed further, we may identify the aspects under each head based on the assumptions listed in the beginning.

1.0 *Meeting the requirements of the learner*
1.1 His readiness, entry behaviour
1.2 His motivational state
1.3 His interests
1.4 His needs—intellectual, emotional, social, etc.

1.5 His abilities

2.0 *Meeting the demands of the discipline*
2.1 Type of content
2.2 Instructional objectives
2.3 Structure of the subject
2.4 Mode of inquiry
2.5 Accordance with syllabus

3.0 *Meeting the requirements of the teaching-learning situation*
3.1 Systematic planning and organization of content.
3.2 Appropriate method of presentation
3.3 Use of psychology of learning in development of concepts
3.4 Readability of the text
3.5 Effectiveness as in instructional tool

Three styles

Now let us see how different aspects of textkook writing, e.g planning, organization, presentation, illustration and review exercises are affected by the curricular intent or by the view the author takes about the learner, the discipline and the teaching-learning situation.

For the sake of simplicity and convenience we may identify three types of science textbooks although we have more. First, those textbooks in which convention pervades or those which accept the teacher as the main manipulator of the teaching-learning process. Second, those which are based on the assumptions of teacher-pupil interaction for effective teaching and learning Third, those in which the pupil is considered the main arbitrator of teaching-learning process Accordingly, we may name these three schools of textbook-writing as authoritarian, interactive and heuristic. A textbook, therefore, can be written on any of these assumptions, depending upon one's viewpoint about the curriculum, learner, discipline and the teaching-learning process. Various frame factors may be identified pertaining to the functional components and accordingly the corresponding emphases in each style of textbook can be laid, as indicated in the table below:

	Style *Frame Factors*	*Authoritarian*	*Interactive*	*Heuristic*
1.0	*Curriculum*	I	II	III
1.1	Concept of learner	Recipient	Participative	Initiator
1.2	View of knowledge	Disciplinary	Integrative	Eclectic
1.3	Implicit value	Competition	Cooperation	Self-devlopment
1.4	General goals	Vocational	Social adjustment	Personal satisfaction
1.5	Curriculum means	Predetermined	Developed	Unstructured and adaptive

2.0	*Discipline*			
2 1	Nature and scope of content	Subject-centered Linear (one science)	Social issue based Intra-disciplinary (within science area)	Experience activity based inter-disciplinary (Science & non-science).
2.2	Conformity to syllabus	Rigid adherence	Restrictive adjustment	Adaptive modifications
2.3	Mode of content selection	Logic of the subject	Specialists	Capabilities of learner
2 4	Selection of content	Information-loaded	Survival-value loaded	Instrumental for personal development.
2.5	Content emphasis	Concept-oriented	Attitude-oriented	Process oriented
2.6	Nature of learning material	Highly structured	Loosely structured	Unstructured
2.7	Formulation of instructional objectives	Prescribed/ predetermind	Formative/as hypotheses	Summative/ emergent
2.8	Type of objective emphasised	Cognitive	Affective	Creativity
2 9	Mode of inquiry reflected, structure of the subject	Directed investigations, rhetoric of conclusions	Guided discovery, cumulative knowledge through social efforts	Open-ended investigations Knowledge as process of learning
3 0	*Learner*			
3.1	Readiness, entry behaviour	a) Same text b) Ungraded text c) Ungraded units of teaching	a) More than one text recommended b) Graded texts c) Graded units	a) No text prescribed b) Programmed texts c) Graded lessons
3.2	Motivation	a) Content-based b) Through demonstration	Activity based, through group investigations	Purpose based, through self-explorations

3.3	Needs	a) Intellectual b) Directed learning	a) Emotional and social b) Group discussions	a) Psycho-motor b) Practical individual tasks
3 4	Interest	One version of text with same approach	Different versions but ungraded text	Different versions and graded text
3 5	Abilities	Catering to mixed ability grouping	Catering to streamed grouping	Catering to independent learning
4 0	*Teaching-Learning Situation*			
A	TEACHING EMPHASIS			
4 1	Instructional objectives	Class-wise	Group-wise	Individual-wise
4.2	Teachers' role	Direction	Management	Assistance
4 3	Teaching style	Authoritative	Teacher-pupil discussions	Individualized instruction
4 4	Methodology of teaching	Lectures and demonstrations	Group projects	Practical task (selfstudy)
4 5	Performance assessment	Teacher based time-tables, assessment	Continuous assessment through pupils' investment	Pupil self-evaluation
4 6	Purpose of assessment	Based on judgment	Diagnostic	Motivational
4 7	Expected learning outcomes	Same standard	Different sets of standard	Individual standard
B.	TEXT METHODOLOGY			
4 1	Planning and organization of content	Logic of discipline	Problem-based line	Individualized, activity-based,
4 2	Mode of presentation of content	Descriptive, narrative	Discussion	Investigative
4.3	Development of concepts	Deductive	Discursive	Inductive
4.4	Readability of text	Dominance of genralized statements	Dominance of social issues discussed	Dominance of questions raised
4.5	Effectiveness as instructional aid	a) Unit-wise treatment of text	a) Problem directed text	a) Open-ended treatment of text.
5		b) Explanatory-illustrations	b) Explanatory-cum-interpretive illustrations	b) Interpretive illustrations
		c) Text-based review exercise	c) Project-oriented and discussion-type questions	c) Process-oriented review exercises

This matrix is only suggestive. More rows and columns can be identified Some may be merged with others. Some more may be added. The three categories are not discrete but overlap, indicating the different emphases.

Depending upon the place of science in the curriculum and the curriculum intention, an author can select any style of textbook writing. Nevertheless, one can use different styles at different places in the same textbook. But it needs a lot of integrative effort to avoid conflicting viewpoints. The validity of such a matrix lies in its applicability to the various types of science textbooks and the corresponding curricula. What is more important is the basic pattern adopted to develop a model on the assumptions made therein Views about the nature of knowledge, nature of the discipline, nature of the learner, implicit values, etc, are the basic factors on which any theoretical model can be developed to provide a rationale for writing science textbooks.

To answer these questions an author or the concerned agency has to indicate preferences in the list of indicators comprising the matrix. The stage (of preparation) at which decisions are made and the rigour with which each criterion is adhered to, are other considerations for using such a model. Rigid adherence to any of these frame factors is to be avoided. Practical considerations are more important, the users of a textbook are its best judges. A good deal of research is needed to establish the genesis of the frame factors But this should not hold us back from using theoretical constructs to explain, correlate and interpret the phenomena having direct or indirect bearing on the qualitative improvement of science textbooks.

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Textbooks and Creativity

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TEXTBOOKS are generally criticized on the count that they exert too strong a conservative influence. They block creativity in teaching and learning. Margolis (1965) observes that today's textbooks are pleasant to look upon and easy to read, but they lack the rough texture of honesty—the kind of detail that slows down the reading but speeds up the thinking. Sanders (1956) also notes that although many textbooks are attractive, accurate, readable and understandble, they are the biggest deterrants to thinking in the classroom, because the authors assume that students learn best by studying a polished, easy-to-read text. They are highly refined and as near perfection as a human mind is capable of making them—but the author does all the thinking and conceals from the reader the effort he has put in The book never gives a clue that he pondered over hundreds of decisions. The result is that the creative process and the controversy of competing ideas are hidden from the students—the readers.

On closely examining the charges levelled against textbooks, one may say that in order to escape the limitations created by the past it would not be wise to forget the past altogether. The text is always a means of carrying forward into the future whatever insights, customs and techniques have been found serviceable in the past. It is not possible, nor wise, to insulate the learner from the culture in which, for better or worse, he finds himself. The problem, then, is: how to make more and more of his culture useful for him? The text is a device for helping the child fit into his culture, but culture need not be passed unedited, good and bad aspects alike. In fact, the nature of the text itself demands that its maker be highly selective in the materials he presents. It is the author who lets the learners have the knowledge he considers of most value. Therefore, a text can actually serve as a vehicle of social reform Rather than becoming unduly conservative, a good textbook can be a modernizing influence. It is not that it is the nature of texts to be conservative. A text can and should be contemporary in spirit and content Good textbooks, like good teachers, have the effect of stirring up the learner's ambition.

It is generally believed that textbooks pass on the ideas of the past and thereby stifle the independent thinking and creativity of young people. This is true only of textbooks that are written so as to suggest to the readers that the content is of unquestionable perfection One should be cautious in criticizing a text for having an authoritative tone A good textbook should be authoritative in one sense Its presentation of subject-matter should be reliable. What is meant, then, when it is said that learning is a creative act ? What do we mean when we encourage the learner to criticize rather than passively accept knowledge ? Does it mean that the learner should develop his ideas by himself, using none of the resources of his culture ? This would be an eminently Rousseauean position, and an impossible one. It goes against our knowledge of the nature of civilization and its value (Cronbach, 1955). Perhaps the phrase "creative learning" implies that the culture can limit, as well as facilitate, the process of thinking. This would not lead us to reject the textbook as a resource in education, but it might suggest that we use it only in the most appropriate manner. The textbook should be supplemented by, or make provision for, creative opportunities. The text checks creativity when it advocates "the one best way", it encourages creativity when it organizes past experience so that the learner can grasp its value and limitations.

Students should have the right to participate in the thinking of the authors of their books They have a right to reason with raw, indigested ideas They cannot understand all the thinking functions of the writers, but they can take over part of them. To accomplish this in a text the author might stop his explanations at various points and, in effect, say to the students "the next idea to be developed is one you can think out if I give you the raw material This is an important idea and will be used later in the text. Give it your serious thought" (Sanders 1966). Thus a well-written and carefully edited textbook can invite creative response and can act as a guide to discovery (Hilton, 1969).

Perhaps the major fault with textbook education is that it appears to be positively antithetical to education for critical thinking The argument is that texts are traditionally regarded as infallible authorities and everything possible is done to make them infallible. Students who go through years of experience in accepting what the text says are continually confirmed in the attitude of accepting the printed word without question. A contrary supposition that the printed word is somebody's statement, to be believed only after scrutiny and testing, is necessary for the reader who is trying to solve any problem outside the school (Cronbach, 1955).

Much depends on how a teacher makes use of a textbook? A textbook cannot act as a Pied Piper for the teacher He should invest efforts to modify the material given in the textbooks to suit his specific purpose. This purpose is to arouse the curiosity and shape the method of inquiry and thought of his pupils. It is also observed that the text materials, prepared to make students critical and creative, are used in a way which further reinforces the old concept of the text as an authority. Preparation of text materials which give pupils, from the earliest grades, a chance to suspect the word in print and to think beyond the lines, is an idea worth suggesting to innovative teachers and textbooks authors.

Manu Desai (1977) has rightly remarked that we are not preparing children to face life Twenty years hence, the present generation of children will blame adults for their sins of omission and commission. They will say that they were provided with badly printed, ill-illustrated, old-fashioned and puerile books, films, TV programmes and music. This can be prevented by a sensitive identification with children, by getting artists to illustrate for the child the world in the form, colour and texture as perceived by the very young, and helping them on to an expression of their creativity.

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Moral Education through Social Studies in Secondary Schools

U. S. MADHYASTHA

IN VIEW of the general decline of moral values in the country, it is axiomatic that moral education should be an integral part of school education, suitably built into the social studies curriculum. Moral education should not be regarded as synonymous with instruction in formal religion. It does not, however, mean that religious principles and spiritual values should be totally excluded. Such a course is neither desirable nor practicable. Religion and morals are inextricably linked together and there is no period of history when religious ideas and personalities have not played a significant role in the personal and national life of a people, and there is no society which has not been at least partially shaped by religious ideas.[1]

Religious themes should be geared to achieve the objectives of social studies instruction and these objectives in turn are determined by the needs of the society. One of the most important objectives of social studies instruction in schools is to bring about a balanced development of the personality of the children to make them ideal citizens. A harmonious development of mind, body and soul through an ideal life of virtue, purity, goodness, self control, kindness, service, fulfilment of one's duties, courage and idealism, make for developing qualities of good citizenship.[2] The framework for the ten-year school curriculum prepared by the NCERT envisages a "core centering round the objective of character building" through the "cultivation of such basic qualities as compassion, endurance, courage .truthfulness, faithfulness, loyalty to duty and the common good".[3]

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[1] Hearn, B. W., *Religious Education and Primary Teacher*, Sir Isaac Pitman & Sons, London, 1974, p 6

[2] Swami Sivananda, *Religious Education*, Divine Life Society, India, 1960, p. 4

Teaching morals in schools is not incompatible with the secular ideal enshrined in the Constitution as it is sometimes made out to be in some quarters. The Radhakrishnan Education Commission, referring to the implications of a secular policy, observed "To be secular is not to be religiously illiterate. It is to be deeply spiritual and not narrowly religious. To be spiritual is to be moral and to be moral is to be human" [4] Secularism imposes on the educational system an obligation to liberally draw methods and materials from different religious ideas to make citizens human and to sustain the "old bonds that kept men together" [5] The primary goals enshrined in the Constitution to secure to all its citizens 'justice', 'liberty', 'equality' and 'fraternity' presuppose the cultivation and development of a strong ethical foundation in every citizen. Justice implies the development of social consciousness which makes the citizens appreciate the need to fight all kinds of social injustice and promote a genuine desire for social reconstruction for the amelioration of the under-privileged.[6] Ethical codes and values drawn from different religions will help us realize this objective. Inculcation of ethical values in all religions will develop in the pupils the right kind of awareness of what liberty implies. Religious tenets can be used to tell our pupils that liberty implies the freedom to do everything provided it does not curtail the freedom of others and morally degrade oneself. It imposes necessary restraint on all in order to ensure the greatest possible liberty for every individual. Liberty in this sense can be maximized only when there is mutual respect, goodwill and when all follow the maxim "do unto others as you wish to be done by".

Equality, another cherished national value, could best be developed through appropriate materials drawn from the rich treasure house of religions. All religions preach equality of human beings in the eyes of God, which implies the removal of all artificial barriers of birth, wealth, caste, creed, colour and sex, so that no one suffers from any kind of social disabilities. The ideal of fraternity in a plural society like ours could be realized by making pupils aware of the essential unity of God and the bond of brotherhood between men—the essence of all religions. Moral education through relevant materials from religions will promote the cause of secularism.

From the above discussion we can conclude that in moral education the emphasis should not be so much on the teaching of theological and metaphysical subtleties of formal religion as on its humanizing and socializing aspects. In other words, moral instruction should be from the social studies point of view, from the point of view of developing desirable social and ethical qualities for good citizenship. Even the conservative Central Advisory Board of Education of 1946 accepted the importance of moral and spiritual instructions "in so far as it can be provided in the normal course of secular instruction".[7] The term of reference to the Sri Prakasha Committee "to examine the desirability and feasibility for making specific provision for the teaching of moral and spiritual values in educational institutions'[8] is not only an indication of the growing interest of the educationists and the statesmen in moral education, but is also indicative of the shift in the emphasis from "religious instruction" used in 1944-46 report to the introduction of "education in moral, social and spiritual values"[9] Education loses all its values if it does not have ethical discipline and spiritual culture as its foundations.[10]

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[3] The Curriculum for the Ten-Year School—A Framework (NCERT) p 5

[4] *Radhakarishnan Committee Report,* p 8

[5] *Sri Prakasha Committee Report,* p. 10

[6] *Kothari Commission Report,* p. 20

[7] Report of the Central Advisory Board of Education quoted in *Radhakrishnan Commission Report,* p 290

This shift in the emphasis which is strictly in keeping with the changing values and demands of our society has invariably transferred the responsibility of moral education from home and family to school. Strongly refuting the contention of the Central Advisory Board of Education that moral and spiritual education should be the responsibility of the pupils' parents, the Radhakrishnan Commission rightly observed that if guidance in this aspect of child's life is "left to homes and community the chances are that communal bigotry, intolerance and selfishness may increase."[11] Religious instruction then will continue to be dominated by meaningless rituals, irrational dogmas and degenerate into meaningless ceremonies and entertainments without any relevance to the needs of community life in the changing socio-economic environment

Scientific, industrial and technological progress have brought about changes in the role of women resulting in the "loosening of social relationship".[12] Careerism and materialistic approach to life have prevented the families from discharging their erstwhile role of socialization of the children which in effect means their moralization. The school has now to step into the shoes of these agencies to provide the much needed and unifying spiritual ingredients These material changes have brought about a kind of environmental pollution which affect not only the physical existence, but also our social, moral and religious life According to Dr. Hakim Khan, the Unesco expert, the traditional value system has become irrelevant to the younger generation in view of the fact that religion is slowly being driven out of the environment in which the new generation grows.[13] Hence the urgent need to bring back these values into our educational system.

Herein comes the role of social studies instruction in schools The social studies curriculum should judiciously select materials from leading religions and weave them into values in keeping with the needs of the society. For purposes of curriculum construction and also instruction, a distinction has to be made between religion and morality. The former is essentially personal and based on individual faith and belief, while the latter has a social reference in so far as the individual is concerned. All religious concepts, principles and values like love, service, duty, sacrifice, selflessness, fellow-feeling, etc. have a social significance. This value complex in a social setting is morality and it is with this part of religion that framers of social studies curriculum should be mainly concerned. The crisis of the day is essentially the crisis of morality, which manifests itself in all spheres of our social and national life, eating into the vitals of the body social and body national Unless this is counteracted and checked in time our society faces the danger of disintegration

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[8] *Sri Prakasha Committee Report*, p. 8

[9] *Kothari Commission Report*, p. 19

[10] Swami Sivananda, op cit, p. 29

[11] *Radhakrishna Commission Report*, p 290

[12] Lionel Ward, *Teaching Moral Values*, Religious Education Press, Oxford, 1969, p. 12

[13] *Vidyajyoti*, March 1975 p. 115

Therefore the aim of social studies education in contemporary society has to be determined in the light of the present predicament of values. Social studies should help children imbibe and develop a system of values that would stand them in good stead in a society now characterized by uncertainty and unprecedented complexity.

The culture of India is rooted deeply in her spiritual values and unless these values are implicit and explicit in Indian cultural and spiritual life and find their way into the life of students education will lose its significance and cannot fulfil its function of endowing the students with a vision to live by and with ideals to work for Therefore, in deference to the cherished goals of democracy, socialism, humanism and secularism, it is imperative that our educational system should evolve a new positive morality which could effectively be built into the social studies curriculum. The new positive morality should have the following objectives:

1. to develop a sense of unity and equality of mankind, and through it an all-India outlook of cooperation, solidarity, cutting across religions, caste and cultural barriers,
2. to inculcate basic virtues like sincerity, simplicity, gentleness, modesty, compassion, humility, courtesy, cooperation, fair play, self-reliance, self control, and truthfulness,
3. to inculcate non-violence and respect for life in all forms;
4. to develop a zeal for hard work, patience, perseverence, and a spirit of service,
5. to develop respect for public and private property,
6 to inculcate the habit of responsible exercise of individual freedom in the society,
7. to develop the right type of disposition to live and let live and work in a spirit of give and take,
8 to develop the habit of personal cleanliness and cleanliness of the surroundings.

The growth of morality is a complex psycho-social phenomenon belonging to the realms of identification and conflict in early childhood and to the conscious character-training in home and school To be a protagonist of the former even where it is possible, it is not necessary to neglect the latter [11] The aim of social studies education is to guide man in evolving dynamism through which he shapes himself as a thinking person armed with knowledge, sense of judgment and moral virtue, while at the same time, to convey to him the spiritual heritage and civilization of the nation of which he is an integral part.

The heart of morality is not in an abstract moral theory; it is a sense of common kinship, an understanding of the feelings and needs of other people. It begins when a citizen first discovers another citizen, feels him to be real and recognizes that his very existence makes demands on all. In other words, the change from individualism to collectivism has profoundly altered the way in which we have to approach our life and activities in society. Technological progress has created a dangerous situation—a cultural lag—making this age an age of demolition and not reconstruction. We have a site but no house[15] Moral education through social studies should aim at building the house by making our pupils realize that man's basic question is a question about man and not about God. To the extent God helps us in achieving this objective religion has a place in our instructional programme. The moral core that every religion emphasizes should form the component of our new positive morality. How can any sensible person, whether religious or not, who has the welfare of society in view, say that he does not care for a strict moral code which is the corner-stone of any religion being observed in society ? If there is to be a well integrated society where no one will feel thwarted, where the relation between the various sections will be smooth and harmonious, all devoted to the pursuit of a common goal of a better human situation, those social virtues that spring from the practice or at least from the knowledge of religion should be more consciously and vigorously brought into play in man's dealings with man.

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[11] Peters, J, *Growing up World*, Longman's, London, 1966, p. 25

For instructional purposes, the moral fibres drawn from different religions should be woven into the fabric of social studies. Through this integrated approach, moral education is built into history, civics and economics units of social studies The teachings of the Buddha, Jesus, Mohammad, Ashoka's Dharma, the tenents of Bhakti and Sufi saints, lessons on liberty and equality, declaration of American independence, the declaration of the rights of man and citizen, emancipation of slaves and serfs, the essentials of Marxism are but a few of the several topics in social studies which can be effectively used to evolve the new morality, so necessary for the life of citizens in the contemporary society.

While developing the new positive morality, the social studies teachers should guard against the imposition of the ready-made traditional rules of conduct Instead, the learning-teaching strategies should be so devised as to encourage the children to discover how principles and attitudes which they believe to be good can be applied in practice in new conditions. The development of moral awareness will be achieved through a process of identification. The children may be unconsciously taking on the values of the historical persons they are studying, and modelling their behaviour after those persons. *There is the obvious danger here, in encouraging children to emulate blindly the people of the past.* Values of the past are rooted in the philosphical, social and religious systems of earlier epochs, which may have no relevance to existing conditions. The search, therefore, would have to be for the most fundamental and universally acceptable aspects of the past moral thought and belief, which are still meaningful to the changed value system. The approach will have to be biographical, and to that extent somewhat at odds with the current emphasis on the broad aspects of social and economic history The selection of personality will have to take into account the children's preference for admired people, not the teachers' preconceived notions of the people whose thoughts and achievements *they* consider worth imbibing.[16] However, the role of the social studies teacher should be that of an interpreter of the complex materials of social evolution, involving value judgments catering to the immature minds of his pupils. Therefore, without discouraging judgment or providing them readymade, he should make all attempts to enable his pupils to realize *their* relevance to *their* existing environment

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[15] Edwin Cox, *Changing Aims in Religious Education*, Routledge and Kegan Paul, NewYork, 1966, p 29

[16] Ward, L O , "History, Humanity's Teacher," *Journal of Education*, Vol IV No. 2, Feb. 1975, p 103

In addition to the biographical approach, the following activities may also prove to be rewarding·

(*a*) study of suitable portions of different religious scriptures,

(*b*) study of the impact of religion on several aspects of life,

(*c*) group activities like service camps, visits to hospitals and visits to places of worship of different faiths,

(*d*) discussions on religion by eminent personalities.

In the U.S.A and New Zealand, a number of schools have introduced non-examination courses, electives, general studies programme and work-experience classes, to relate schooling to life beyond the school fence Courses entitled "family life education", "design for living" or "social education" are quite common and include discussions of moral issues and decision-making along with budgeting, hygiene, first-aid and child care.[17] These activities are necessary because, precepts embodied in teaching have little effect unless they are confirmed by our actions and examples Since moral education is the preparation of individauls for participation in social life and acceptance of social rules, mere morality of constraints and inhibitions are not enough.[18]

Education in any society is inescapably linked to national development in all its ramifications In the context of socio-political conditions obtaining in the country today, we need a system of education which, besides strengthening national unity and consolidating democracy both as a form of government and as a way of life, should strengthen social solidarity through character-building No other core subject in the school curriculum is better suited than social studies for translating these qualitative objectives into educational programmes, structures, curricula and techniques, so that education makes a solid contribution to national development. ☐

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[17] Colin McGeorge, 'Some Old Wine and some New Bottles—Religious and Moral Education in New Zealand", *Journal of Moral Education*, Vol IV No. 3, June 1975, p. 216

[18] Niblett, W R, *Moral Education in a Changing Society*, Faber and Faber, London, 1963, p. 11

Utility of Charts as Educational Inputs

D.N. GAIND

IN THESE DAYS the complexity of the teaching-learning process has increased. There has been a phenomenal expansion of knowledge which tends to increase by geometrical progression Knowledge itself has assumed many new dimensions. It has to be imparted in its depth, length and breadth The mode of its organization has to be a composite one, reflecting the inter-disciplinary approach. The focus of teaching-learning activity has to be the child. The latest research in the area of learning has revealed that the lapses in the memory of a child are to a large extent due to his ·

1. not seeing with clarity what he is presumed to learn,
2. the abstract nature of material presented;
3. lack of vividness of learning experiences;
4. absence of vital reflection on the object of learning.

It is usually observed that the abstract, bookish and formalized methods of teaching rob the child of his interests and curiosity to learn.

Real learning seeks to establish a permanent bond of what the child knows and of the instructional objectives which are in view For this charts have a great educational potential For educational efficiency of charts it is, therefore, very essential that there should be a close relationship between facts which he has already learned and facts which he is expected to learn.

Charts and Textbooks

For teaching purposes, textbooks are our mainstay. Our textbooks, however skilfully they are prepared, have their obvious limitations. They are a condensed and simplified version of a comprehensive coverage of subject matter. With their limitations of space they are bound to present difficulties in comprehension and visualization. Very often they leave much unsaid and there is need for covering many lacunae for making the exposition realistic and vivid and for illustrating the gap between facts and their relationships. We still lack good textbooks and authors. In many cases, our teachers are not adequately qualified No effective learning can accrue unless students clearly understand what they study. In this process audio-visual materials play a significant part. This is specially so in the teaching of social sciences because they deal with the process of change and development of men and institutions

Role of Charts

Among the visual aids, charts have a special role. They are great time-savers. They explain a lot of things in all their complicated relationships. The phenomenon becomes clear at a single glance. This aids comprehension. In illustration of facts, as an insrructional medium, they are ideally suited With their details, graphic representation, symbolic forms and diagrammatic structure they bring home a point to the students more surely and vividly than rambling descriptions. They reinforce instructional effect and provide rich perceptual experience, facilitating the learning process They are also a handy device for self-learning. A verbal description often proves inadequate. This is especially true in the teaching of social sciences, particularly in the teaching of history, where the students have to visualize historical phenomena running through centuries—far removed from their life and time Charts, with their graphic representation, can cover whole millennia, focussing attention on the process of change and continuity.

Kinds of Charts

Charts may be of various types. They may be diagrammatic or may use symbols, triangles, rectangles or circles. They may also be pictorial These charts may relate to important personalities and their contributions and the battles of Indian history with their results, important administrative systems and their features, comparison and contrast of different institutions, structure of society with various classes and their functions, organization of services and administration at the central, provincial and local levels, etc. The charts may also assume the form of time-friezes and columns. Such devices are very useful for purposes of comparison or summary Whenever a teacher has numerous statistical data or other complicated facts and relationships to bring out he may make use of such charts.

Then there are time charts and flow charts. Time charts help pupils to visualize the pageant of time. They provide the chronological framework for historical events. Such charts may show the growth and development of movements, consolidation of dynasties, etc. Flow charts on the other hand seek to present organizational elements and their functional relationships, e.g. the relationship between the executive, judicial and the legislative departments or the relationship between the central, the provincial and the local administration of different rulers.

Geneological Charts

Another kind of chart is the geneological chart Such charts are made use of when we want to depict growth and development The trunk of a tree in such charts often represents the source Rectangles, circles and other symbols are also used and the various stages of growth are represented by branches. Every branch may have its own offshoots. Such charts are commonly designed for showing various dynasties, causes of different movements, effects of important events, etc. These charts are very helpful for summary purposes

Qualities of Good Charts

Good charts are helpful to the teachers and the students. The utility of charts and their use in the instructional process will essentially depend on the data and the number of facts which these charts attempt to illustrate. The teachers have to constantly bear in mind the educational possibilities of charts and see that they are properly designed. They must seek to realize specific instructional objectives They should be intimately related to the text. They should be full of details, bringing vividness to phenomena which they seek to bring home to the students. The utility of a chart depends on its accuracy. They must give information or illustrate relationships which are based on recent and up-to-date findings. Their display should not be formal and should depend on the needs of different lessons and the instructional outcomes which the charts seek to realize.

It should however be clearly noted that even the best charts can never replace the teacher and the textbook Further, charts should never be considered ends in themselves but they should be used as means to an end. Charts should supplement lectures and texbooks. It is only when they are used as such that they will reinforce textual appeal and the interest of the students.

Use of Charts in the Classroom

SOCIAL STUDIES

Charts may be used in several ways in the classroom. For example in the teaching of social studies, a chart may be designed to show the development of transport and communication through the ages, Charts may be used to launch many activities among students Students may construct models of the vehicles shown on a chart or write essays on them.

In social studies the concept of interdependence can be explained through such charts, for example by noting important events which were related to developments in transportation. Students will be made aware that transport has played a major role in every phase of the growth of civilization. The exploration of new lands, the discovery of untapped resources and the growing production of raw materials and goods, depended on efficient means of transportation. Improved transportation gave a fillip to exploration, use of such natural resources and manufacturing. Charts seek to cultivate the enquiry approach in learning. Awareness is aroused that discovery, research, invention and industry combined to change the face of India.

In the teaching of history, we may also use layer charts. It is an interesting device for showing the growth of a kingdom or empire. In such charts the extent of empires and the expansion of dominions can be shown against a proper background. Besides simple time-lines, there may be progressive and regressive time-lines. In regressive time-lines we retrace our steps, from the present to the past. These time-lines will become more attractive if they are made pictorial. Historical events may be represented by symbols. Pictorial time-lines are especially recommended for lower classes. In higher classes, comparative time-lines may be used. In comparative time-lines events happening in different countries are presented in time-lines (horizontal or vertical) placed side by side so that they may be compared with each other. From comparison of various events and processes, general conclusions may be drawn. Such time-lines are very handy because they help connect happenings in one country with those in another.

Comparative time-lines may also cover such topics as industrialization or democratization and constitutional development or commercial expansion in different countries. They may be in the form of single axis graphs for the presentation of temporal relationships between historical happenings. Two-axis graphs may be utilized for presenting relationships between the historical phenomena.

LANGUAGES

In the teaching of languages in the elementary classes charts can be used for teaching alphabets and testing children's knowledge for the teaching of grammar, training in sequence and use of vocabulary In the middle classes there may be story charts which aid visualization, cause motivation and stimulate thinking. There may also be grammar charts. In the higher classes charts may be used for teaching grammar, structures of sentences and thought sequences.

When appropriate captions and brief descriptions are added, charts prove very useful Charts are best suited for illustrating one main idea at a time

When charts are shown by teachers, there should be some follow-up work. This should have a dual aspect: first the teacher will test the children's learning by means of questions, then he will tell them what is lacking in their replies. This will give him the necessary feedback to improve the quality of the charts he uses in the class.

There cannot be two opinions on the use of charts as an educational input. Their effectiveness and impact will, however, depend on their quality, details and form of visual representation. □

The Status of Home Science in Higher Education

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THE FIRST higher level home science course in India was begun in 1932—a diploma programme after high school at the Lady Irwin College, New Delhi. Later on two colleges of Madras University—Women's Christian College and Queen Mary's College, jointly began the degree programme in 1942 The degree programmes went on developing in different universites of India but no systematic information regarding their present status existed. Therefore, the author studied the status of home science in higher education Such material is valuable in establishing benchmarks of progress and change. It would also point out significant trends and changes. It would provide the educationists, home scientists and planners insight to envisage the future requirements, trace the potentialities of the existing institutions, find out new approaches and to execute them.

METHODOLOGY

The data was collected through questionnaires and discussions with the leading home-scientists, educationists and heads of the home science institutions. The important institutions were visited and relevant records gone through to get the valid data The data was analysed in number and percentage,

The growth rate of the degree programmes developed, the number of students enrolled and degrees granted were calculated. The graph was plotted and the curve drawn by using the equation $Y=AB^x$. The growth rate was calculated by (B-1) ×100 (Freud and William, 1958).

FINDINGS AND DISCUSSION

Taxonomy of Institutions

By the end of 1974, home science courses at the higher level of education were available throughout the country. There were 36 universities with 73 institutions These institutions differed in their periods of growth, administration, examination system and levels of programme (Table 1).

TABLE 1

TAXONOMY OF HOME SCIENCE INSTITUTIONS IN INDIA

Characteristics	Types of Institutions			
	Independent	*Dependent*	*Existent*	*Total*
	N	*N*	*N*	*N*
	10	*10*	*42*	*62*
Period of growth				
1942-54	2 (20.0)	1 (10.0)	3 (7.1)	6 (9.7)
1955-64	2 (20.0)	3 (30.0)	18 (42.9)	23 (37.1)
1965-74	6 (60.0)	6 (60.0)	21 (50.0)	33 (53.2)
Type of administration				
Government	2 (20.0)	1 (10.0)	23 (54.8)	26 (41.9)
Non-Government	2 (20.0)	1 (10.0)	18 (29.0)	21 (33.9)
Part of University	6 (60.0)	8 (80.0)	1 (1.6)	15 (24.2)
Type of examination				
Annual	9 (90.0)	3 (30.0)	42 (100.0)	54 (87.0)
Semester	1 (10.0)	4 (40.0)	—	5 (8.1)
Trimester	—	3 (30.0)	—	3 (4.9)
Level of teaching				
Undergraduate	4 (40.0)	6 (60.0)	28 (66.7)	38 (61.3)
Postgraduate	6 (60.0)	4 (40.0)	14 (33.3)	24 (38.7)

Arrangements for the teaching of sciences and humanities, an integral part of the total home science programme, and which every institution is supposed to make, differed. Three main categories emerged:

(*i*) The institutions which made arrangements in the college itself,

(*ii*) The institutions which arranged the teaching with sister departments/faculties/colleges in a macro-organization,

(*iii*) Institutions which were helped by other departments/faculties within the college under a macro-organization

On this basis these institutions were labelled as 'Independent', 'Dependent' and 'Existent', or the 'I', 'D' and 'E' types The number of institutions[1] in each type was 11, 11, 51 respectively.

On the above-mentioned criteria it was seen that certain states had one particular type of institution and others had different types, e.g Tamil Nadu, Madhya Pradesh, Karnataka, Kerala and Andhra Prades had only 'E' type institutions. Only two institutions in Andhra Pradesh were of 'D' type. In Uttar Pradesh, Delhi, Gujarat, Punjab, Rajasthan and Haryana the institutions were either of the 'I' or 'D' type. In Bengal there were only two institutions: one[2] of the 'I' type and the other of the 'E' type. Only Maharashtra had all the three types of institutions.

Period of Growth

On the basis of the time gap between the two new programmes at a given time the total period could be divided into three sub-periods: 1942-54; 1955-64; and 1965-74. The three periods revealed different development trends. The number of programmes developed during each period was much higher than the last The number of 'E' type institutions was higher than the 'I' and 'D' types During 1942-54 two 'I' type, one 'D' type and three 'E' type institutions came up, during 1955-64 two 'I' type, three 'D' type and 18 'E' type and between 1965-74 six 'I' type, six 'D' type and 21 'E' type. The development of the programme showed a continuous growth in all three types of institutions and during each succeeding period a far more extensive one.

When the growth rate was calculated, the basic nature of the growth curve was found to be exponential (Fig. 1), which means that the number of new programmes went on increasing. The growth rate was found to be 74 per cent.

Administration

When the administration pattern of these institutions was viewed, it was seen that these were administered by the government, by non-government agencies and by the universities. All the three types of adminisration were seen in the 'I' type of institutions, whereas most of the 'D' type institutions were part of the university. In comparison to the 'I' and the 'D' type of institutions, most of the

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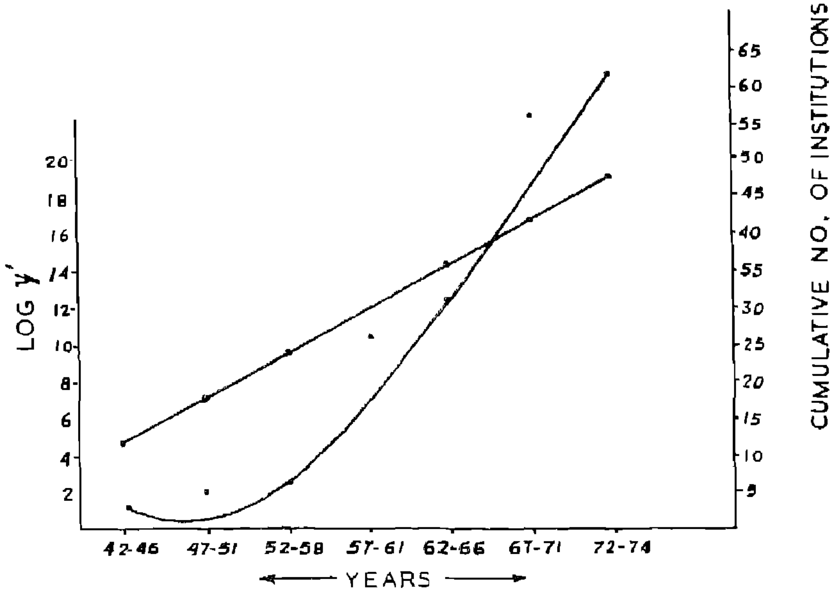
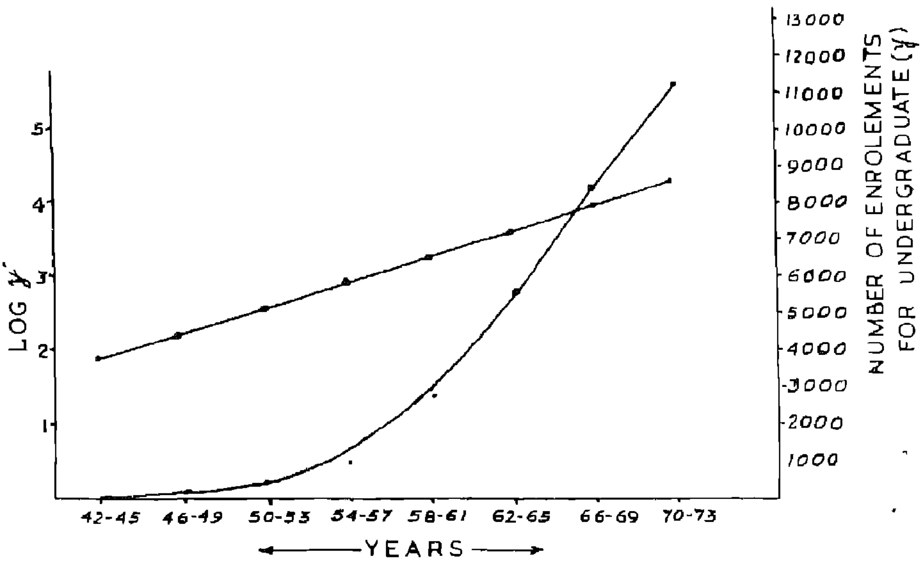
[1] The number given here is the total number in each category as it existed in 1974. The actual number of respondents in each category was 10, 10 and 42 respectively for the three types of institutions, 'I', 'D' and 'E'. The institutions which did not respond were either very new or of negligible importance

[2] This institution did not respond in this study, therefore it is not included in the 10 I' type institutions.



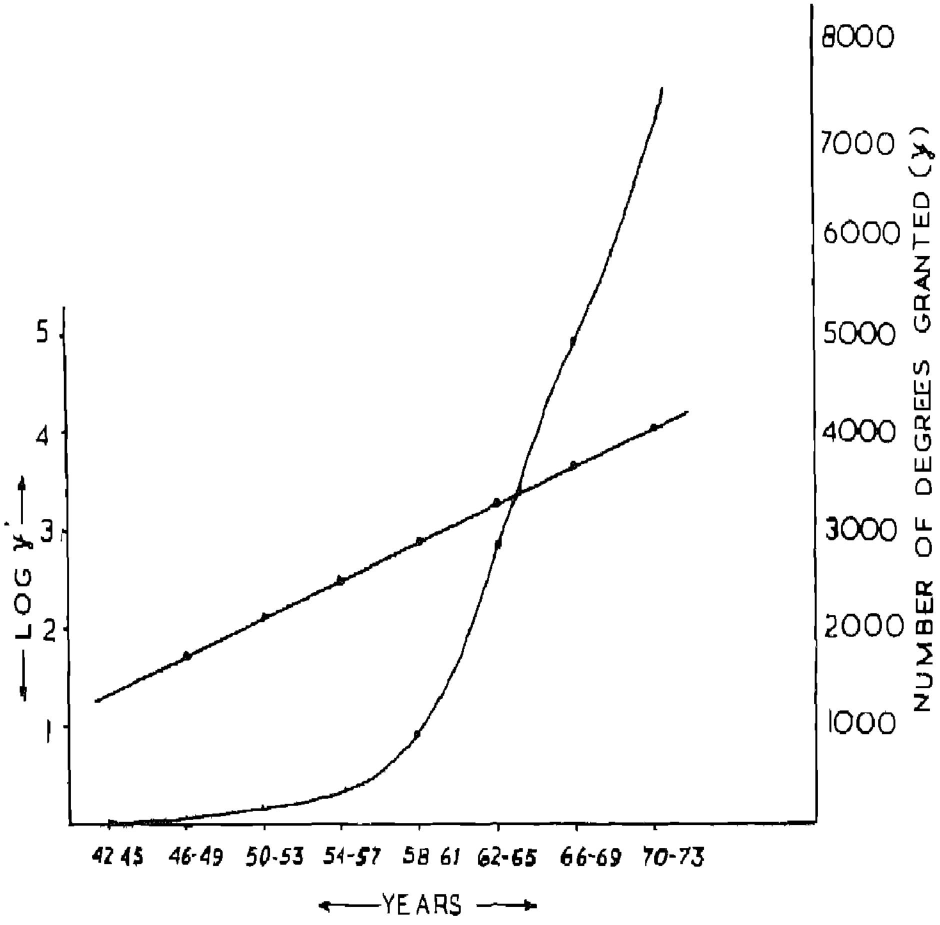
DEVELOPMENT OF HOME SCIENCE PROGRAMMES IN INDIA

FIG. 1



THE ENROLMENT FOR UNDERGRADUATE PROGRAMMES IN INDIA

FIG. 2



THE DEGREES GRANTED FOR UNDERGRADUATE PROGRAMME

FIG. 3

'E' type institutions were maintained either by the governtment or by non-government agencies. Only one institution of the 'E' type was part of the university. Most of the 'I' and the 'D' type of institutions were part of the university

Examination System

Three types of examination system—annual, semester, trimester—were prevalent in these institutions Among the three types of institutions, the annual system of examination was higher in the 'I' and the 'E' types 90 and 100 per cent respectively. In the 'D' type of institutions all the systems existed. None of the 'E' type institutions had the semester or trimester system.

Levels of Education

The study of the undergraduate and postgraduate programmes revealed that the latter existed in all the three types of institutions. The maximum percentage of postgraduate programmes was in the 'I' type and lowest in 'E' type institutions. The percentages were 60 and 35 respectively. In comparison to the 'I' type, percentage of the 'D' type institutions with postgraduate programmes was much less. However, the postgraduate programme in these institutions were available only in one or two areas of specialization. Only two institutions, the Faculty of Home Science, Maharaja Sayajirao University of Baroda ('D') and Sri Avinashilingam College of Home Science, Coimbatore of the Madras University ('E') had all the five[3] areas of specialization.

Enrolment and Degrees

The examination of enrolment and degrees conferred at the undergraduate and postgraduate levels has shown changing trends over a period of time. These are analysed here at eight-year intervals from 1942 to 1973 for the two programmes (data being available only up to 1973)

The Undergraduate Programme

The analysis of the student enrolment in the different types of institutions revealed that there was a continuous rise in the enrolment number in all the three types of institutions. The rise in the enrolment percentage from one period to the other was different in each type of institution. The difference ranged from 3 to 49 in the 'I' type, 18 to 42 in the 'D' type and 3 to 34 in the the 'E' type institutions (Table 2).

In the 'I' and the 'B' type of institutions the rise in the percentage of growth was more than three to five times whereas in the 'E' type, the growth was 5 to 10 times.

When the growth rate was calculated, the basic nature of the growth curve was found to be exponential (Fig. 2), which means that the enrolment number went on increasing, The growth rate of the entrants was found to be 48 per cent.

The degrees conferred also revealed a rise in the percentages in all the three types of institutions. In the 'I' type of institutions the rise in the percentages ranged from 4 to 54, in the 'D' type 27 to 41 and in the 'E' type 1 to 52 (Table 3). The rise in the percentage is highest in the 'E' type and is very similar to the outcomes of all the three institutions

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[3] The five areas of specialization are. Child Development, Clothing and Textiles, Foods & Nutrition, Home Management, Home Science Education and Extension

TABLE 2

ENROLMENT FOR THE UNDERGRADUATE PROGRAMME

	Types of Institutions							
	I=9		*D=8*		*E=38*		*Total=55*	
Period	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*
1942-49	2	68 (0.8)	—	—	2	123 (0.7)	4	191 (0.6)
1950-57	3	416 (4.8)	1	462 (9.9)	7	559 (3.4)	11	1437 (4.9)
1958-65	4	1990 (22.8)	4	1306 (27.9)	21	5056 (31.1)	29	8352 (28.2)
1966-73	9	6231 (71.6)	8	2923 (62.2)	38	10522 (64.7)	55	19616 (66.3)
Total	9	8705 (100.0)	8	4691 (100.0)	38	16260 (100.0)	55	29656 (100.0)

TABLE 3

UNDERGRADUATE DEGREES CONFERRED

	Types of Institutions							
	I=9		*D=8*		*E=38*		*Total=55*	
Period	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*	*INST* *N*	*ST* *N*
1942-49	2	20 (0.5)	—	—	2	62 (0.6)	4	82 (0.5)
1950-57	3	180 (4.7)	1	37 (1.8)	7	207 (1.9)	11	424 (2.6)
1958-65	4	788 (20.5)	4	577 (28.6)	21	2393 (22.7)	29	3758 (22.9)
1966-73	9	2855 (74.3)	8	1407 (69.6)	38	7883 (74.8)	55	12145 (74.0)
Total	9	3843 (100.0)	8	2021 (100.0)	38	10545 (100.0)	55	16409 (100.0)

TABLE 4
ENROLMENT FOR POSTGRADUATE PROGRAMME

Period	Types of Institutions I=9 INST N	 I=9 ST N	 D=8 INST N	 D=8 ST N	 E=38 INST N	 E=38 ST N	 Total=55 INST N	 Total=55 ST N
1942-49	—	—	—	—	—	—	—	—
1950-57	—	—	1	8 (1.2)	—	—	1	8 (0.3)
1958-65	2	95 (15.8)	4	171 (26.0)	7	234 (17.1)	11	500 (19.0)
1966-73	6	507 (84.2)	5	479 (72.8)	13	1137 (82.9)	24	2123 (80.7)
Total	6	602 (100.0)	5	658 (100.0)	13	1371 (100.0)	24	2631 (100.0)

TABLE 5
POSTGRADUATE DEGREES CONFERRED

Period	Types of Institutions I=9 INST N	 I=9 ST N	 D=8 INST N	 D=8 ST N	 E=38 INST N	 E=38 ST N	 Total=55 INST N	 Total=55 ST N
1942-49	—	—	—	—	—	—	—	—
1950-57	—	—	1	—	1	—	2	—
1958-65	2	43 (12.3)	2	91 (23.6)	7	149 (13.4)	11	283 (15.3)
1966-73	6	306 (87.7)	5	295 (76.4)	13	966 (86.5)	24	1567 (84.7)
Total	6	349 (100.0)	5	386 (100.0)	13	1115 (100.0)	24	1850 (100.0)

TABLE 6
A COMPARISON OF UNDERGRADUATE AND POSTGRADUATE PROGRAMMES

Programmes	Periods 1942-49 N	 1950-57 N	 1958-65 N	 1966-73 N	Total N
Enrolment					
Undergraduate	191	137	8352	19616	29656
Postgraduate	—	8	500	2123	2631
Degrees Conferred					
Undergraduate	82	424	3758	12145	16409
Postgraduate	—	—	283	1564	1850

When the growth rate was calculated for the degrees conferred the growth curve was seen to be exponential (Fig. 3) which means that the number of degrees conferred went on increasing. The growth rate was found to be 56 per cent.

The Postgraduate Pragramme

The development of the postgraduate programmes showed that out of 58 institutions only 40 per cent, i.e. 23 could introduce the master's programme. During 1950-57 only one institution of 'D' type began the master's programme whereas during 1958-65 the 'I' and the 'E' type institutions also began the programme. The rise in the enrolment percentage from 1958-65 to 1966-73 was 68, 47 and 67 respectively in the three types of institutions, 'I', 'D' and 'E' (Table 4)

When the comparison of the enrolment percentage was viewed with the degrees conferred it was found that there was a rise in the number of degrees conferred in all the three types of institutions The rise in percentages of degrees conferred from the periods 1958-65 and 1966-73 was 75, 53 and 73 in the 'I', 'D' and 'E' type of institutions respectively. The degrees conferred showed a relationship with the number of students enrolled (Table 5).

Comprehensive Look

The undergraduate programmes were begun in 1942 whereas the postgraduate programme began in 1956. An analysis of the enrolment and degrees conferred for the two programmes at an interval of 8 years reveals that ·

At the undergraduate level, except during 1950-57, where the degrees awarded were one-third of the enrolment, in all the other periods, with minor fluctuations, nearly half of the students enrolled were awarded degrees (Table 6.)

Till 1956 there was no postgraduate programme. With the introduction of the postgraduate programme nearly all the successful students of the Bachelor's Degree went in for postgraduate study. But this proportion went on decreasing during successive periods, i.e. it was nearly 100 per cent in the beginning but later on it dropped to 57 per cent The overall proportion of postgraduate enrolment is 1 for every 9 undergraduate students enrolled, whereas the proportion of the postgraduate degrees conferred in comparison to undergraduates is 1 · 11.

However, the percentage of postgraduate degrees conferred in proportion to the enrolment went on increasing

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Projects and Experiments in Secondary Schools—A Review

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AJIT SINGH

QUALITATIVE IMPROVEMENT of education is needed at all levels, but it is particularly required at the secondary stage which serves as a link between elementary and higher education and is also a terminal point in the case of a large number of students. A good deal of qualitative improvement becomes possible through research because it not only forms the basis for improvement of existing practices but also opens new frontiers of knowledge. While the former is done through applied research, the latter is achieved through fundamental research.

Until quite recently, it had been the conviction that educational research could be undertaken only by specially trained and experienced researchers and the findings of their research, if disseminated, would bring about the desired changes and improvements in educational practices. It was also felt that the teachers who are the real practitioners were not capable of undertaking research and their role was simply to apply the results of research done by others However, it has been observed in actual classroom teaching that the practitioners have hardly made any use of these research findings. However, it is now being realized that real improvement in educational practices can be effected only if research related to school practices is done through the involvement of teachers. Corey (1953) advocated this viewpoint and hoped that teachers, supervisors and school administrators might make better decisions and engage in better practices if they were to conduct research as a basis for dealing with classroom problems. Thus the role of the teacher is undergoing a change from that of a consumer of research findings to that of an experimenter and innovator. The advantage of classroom research done by teachers themselves lies in the fact that the findings of their research could be directly utilized by them in the school situation, leading to improvement in school practices Davis (1952) in his doctoral study, concluded that research results would change practices more quickly if those whose practices are to be affected were involved in the research. Therefore, certain agencies and institutions like the National Council of Educational Research and Training came forward to assist teachers in this task by way of financing and technically guiding some 2500 projects taken up by secondary school teachers in the country during the period 1957 to 1972.

The NCERT scheme, known as 'A Scheme of Assistance for Projects and Experiments in Secondary Schools' was initiated in 1957 with the following major objectives :

(i) To encourage teachers and schools to undertake projects and experiments directed towards the improvement of classroom practices and related activities and also to encourage them to adopt scientific approach to the solutions of their problem

(ii) To encourage institutionalization of useful and successfully tried-out educational practices.

Since the scheme encourages innovative ideas and experimentation in schools, their participation level will, therefore, indicate the State's interest in introducing new schemes in schools. Statewise percentage of experimental projects in relation to the number of secondary and higher secondary schools as in 1971 is shown in Table 1 :

TABLE 1

LEVEL OF PARTICIPATION IN EXPERIMENTATION BY DIFFERENT STATES DURING 1969-70 TO 1971-72

S. No	*Name of State/ Union Territory*	*No of high/ higher secondary schools in 1971*	*Average number of projects approved every year*	*Percentage of projects approved in relation to the number of high/higher secondary schools in the State*
1.	Rajasthan	1034	42	4.06
2	M P	1656	31	1.87
3	Karnataka	2060	38	1.84
4	Jammu & Kashmir	559	7	1.25
5	Orissa	1560	16	1.02
6	Gujarat	2342	22	93
7	Kerala	1393	13	.93
8	Himachal Pradesh	426	4	93
9	Bihar	2000	17	85
10	U.P	3249	25	76
11.	Punjab	1320	8	.60
12	A.P	2914	12	.41
13	Goa, Daman & Diu	195	7	.35
14	Tamil Nadu	2699	8	29
15	Haryana	1065	3	.28
16.	Manipur	123	3	24
17.	West Bengal	3935	9	.23
18	Assam	1324	3	23
19	Maharashtra	5158	9	.17
20.	Chandigarh	23	—	—
21.	Delhi	518	—	—
	Total	35,557	268	.75

The average number of projects conducted in 1971 by one hundred schools in the country was only 75 which means that only one out of 133 schools undertook a project

Besides, participation level of 10 out of 21 states and Union Territories participating in the scheme has been above the national average, while in the case of the rest of the 11 states and territories, it is below normal. However, the percentage of projects conducted in Rajasthaan is 4.06, followed by M.P. and Karnataka with 1.87 and 1.84 per cent. Also Kashmir and Orissa have been keenly interested in the programme. But Delhi, Chandigarh, Maharashtra, Assam and West Bengal have been least interested. Similarly States like Maharashtra and West Bengal, having the highest number of schools, have shown little interest in experimental projects.

The total grant during the period under consideration (1969-70 to 1971-72) for 804 approved projects was Rs 2,84,741. The average grant per project comes to Rs. 349 approximately, although the variation in grant ranges from Rs 50 to even more than a thousand rupees for a project However, the most common range in grants is between Rs. 250 to 500 for a project.

Distribution of these projects in accordance with the academic areas is shown in Table 2 :

TABLE 2

ACADEMIC AREAS REPRESENTED IN THE APPROVED PROJECTS/EXPERIMENTS (1969-70 TO 1971-72)

S No	*Academic Areas*	*Number of projects/ experiments approved*	*Percentage to the total projects/experiments approved*
1.	Methods of Teaching	496	61.85
2.	Attitudes and Behavioural Problems	108	13.46
3.	Examination and Evaluation	47	5.86
4	School Organization and Administration	34	4.24
5.	Co-Curricular	25	3.12
6	Preparation of Instructional Material	15	1.87
7	Guidance and Counselling	12	1.49
8	Curricula	9	1.12
9.	Miscellaneous	56	6.99
	Total	802	100.00

The academic areas in which teachers have shown research interest are methods of teaching, attitude and behavioural problems, examination and evaluation, school organization and administration, co-curricular activities, preparation of instructional material, guidance and counselling, curricular activities, and some miscellaneous problems, in that order It indicates that by and large teachers have covered almost all the major areas of instruction they are concerned with in the classroom Out of a total of 802 projects approved in the 18 states during the three years under review, the largest chunk of 496 projects i. e 61.85 per cent projects, were concerned with methods of teaching. This means that most of the teachers conducting projects were interested in finding out the efficacy of certain methods of teaching which they wanted to adopt in place of traditional methods with a view to make their classroom teaching more effective. This indicates that teachers are interested in making their teaching effective, and to help them in this is the main purpose of the NCERT programme.

The number of projects (under attitude and behavioural problems among students) was 108, i.e. 13 46 per cent of the total number. Perhaps it is evidence of the fact that the teachers are seized of the growing indiscipline, truancy and other behavioural problems in schools. Examination and evaluation, school organization and co-curricular activities are some other important areas that interest teachers for experimentation in schools

Projects taken up by classroom teachers fall into three categories, viz action research to solve specific classroom problems, experimental research to match the effectiveness of other methods and techniques of teaching, and development research to improve the established practices. Distribution of these projects, according to project designs, is shown in Table 3 :

TABLE 3

DISTRIBUTION OF PROJECTS ACCORDING TO PROJECT DESIGN

Nature of Design	*Total number of projects conducted*	*Percentage to the total number of projects conducted*	*Number of States and U T s which conducted projects between the ranges given below*				
			1-10	11-20	21-30	31-40	above 40
Action Research	59	23 7	17	—	—	—	—
Experimental	74	29 7	16	—	1	—	—
Developmental	116	46 6	13	3	1	—	—
Total	249	100 0					

Since projects are taken up by a few enthusiatic teachers for bringing about improvement in their classroom instruction, it would be worth while to examine whether there exists any relationship between the teaching experience of teachers who conducted projects and the number of projects conducted by them. The data shows that there is a positive relationship between teaching experience and experimentation by teachers to a certain extent. The largest number of projects, i.e. 30.2

per cent was conducted by teachers with 6—10 years of experience. Those falling within the range of 0-2 years of experience conducted only 19 projects during the three-year period under consideration, which shows that the new teachers are not so keen to undertake this kind of work. Similarly, as the experience of teachers increases beyond 10 years, then enthusiasm and desire to experiment diminishes and they like to stick to their routine methods of teaching.

Similarly, figures relating to sex-wise distribution of experimenting teachers showed that out of a total number of 595 teachers who conducted projects, 485 (81.5) per cent were male and only 110 (18 5) per cent female. Reasons for this low participation may be several. One of the important reasons may be lack of time due to domestic duties. When a teacher undertakes a project, he or she has to devote more time than that required for routine or traditional teaching. It may also require some work by the teachers at home. The female teachers are usually busy at home with their domestic chores and with their children. The second reason might be that female teachers in general are perhaps not much interested in improving their teaching through experimentation and are satisfied with their own kind of teaching. A study by Collins (1973) supports the second reason 'In his study of male and female teachers in Australian schools, he found that female teachers show a tendency to be much more traditional and formal in their approach to their profession, while the male teachers' participation has been more than the all-India average.

The scheme has a provision that a project can be undertaken either by an individual teacher or by a few teachers collectively. This has been done with a view to encourage participation of teachers in the programme. It may also help improving the quality of projects as persons of different specializations will be involved in the experiment,

Out of 240 projects, as many as 107 (44.6 per cent) were conducted by individual teachers and 49 (20 4 per cent), by a team of two, and the rest, 84 (35 per cent) by three to five or more investigators each. Cooperative or group projects are likely to bring improvement in classroom practices quicker than the individual projects simply because more teachers are involved in such projects and the teaching of all the teachers involved in the projects will naturally be influenced by the successfully conducted projects There is, thus, a need to encourage cooperative or group projects by teachers and schools.

However, it is found that out of a total of 804 projects only 40.5 per cent were conducted in government schools and 59 5 per cent in non-government schools. The proportion of government and non-government schools in the country is 40 and 60 per cent respectively. It is to be noted that participation of government and non-government institutions in the scheme has been almost in exact proportion to their number in the country. □

Rapid Reading : A Time For Action

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THE ADVENT of modern technology is one of the strongest influences in motivating worldwide interest in extending and improving the reading skill of every individual.

Education helps in solving almost all the world problems Since education is lame without reading *reading* has always to remain at the forefront. A look at the percentage of failure of students from the primary to the highest level shows that the cause of this wastage lies in their undeveloped reading power.

Researches in the area of reading have shown that a large majority of the failures in different subject areas are not necessarily subject failures In fact, these are reading failures sheltered under the umbrella of subject failures. Our students are never taught to read in the content areas, which increases the number of failures. Because the students require specific reading skills for studying different subjects

A survey in the city of New York to determine the reading achievement of freshmen and sophomore high school students (in comparison with their mental ability) revealed that 15 6 per cent of the students were reading at least one year above expectancy, the achievement of 42.1 per cent was commensurate with their ability, while 42.3 per cent were reading below expectancy. It is likely that an almost similar situation exists in our schools.

It is in fact a very alarming situation that so many young people are failing to use their talents fully It is then obvious that the need for better and need-oriented reading instruction is marked. The wide gap which exists between the potential to achieve and actual reading achievement is to be bridged as early as possible so that these people are able to make full use of their potential.

It is not very uncommon to hear the senior students telling their junior ones: 'English is very difficult', 'geography is uninteresting', 'history is dull and boring', and 'mathematics is totally mysterious' But English is not difficult, geography is not uninteresting, history is neither dull nor boring and mathematics is not at all mysterious The difficulty, the disinterest, the dullness and the mystery are the result of wrong reading habits and unawareness of the study techniques in content areas. The element of reading is common in all subjects and at all stages. It is high time we did something to remedy the situation.

Whether you are a student or a teacher, or in any other profession, you cannot do without reading. There is no other way—you have to *read.* Imagine a day when this supreme "R" is excluded from the whole system. What will remain? Nothing, I suppose. Technology has not yet replaced reading. Affluent countries with plenty of technical know-how and expensive machines have come to the conclusion that reading cannot be supplanted. Other media may come and go but reading will stay for ever. Reading has unique contributions to make. It is a high-powered tool. It is a means to an end. Who does not like to read? Children read, adolescents read, adults read, and even the sick persons who have been advised complete rest by their doctors, take great pleasure and relax in reading

Reading is a torch that lights up the mind, and it demands an alert mind—an inventive mind. Nobody reads perfectly relaxed. Reading involves activity of the eye and the brain. Your thoughts run faster than the speed with which your eye is able to see.

In the past, people believed that a reading speed of 250 or at the most 300 words a minute was the utmost that human beings were capable of achieving.

Slow reading does not indicate a lack of intelligence, and faster reading habit does not necessarily indicate a superior intelligence either Dr. Buswell has had in his college classes students of unquestioned intelligence, who were slow and clumsy readers, because their basic reading ability was permitted to level off too soon. On tests of basic reading they scored below sixth-grade norms. In a recent study made by this author it was found out that the senior executives of our country are reading at a speed similar to that of seventh-graders. The usual rate of reading non-technical material at the end of the seventh grade is about 197 words per minute, while for senior executives the average rate is about 227 words per minute. This insignificant increase beyond the rate of seventh grade is a cause of much concern, particularly in view of the selective character of the senior executives.

Of course there is so much to read today that the ability to read rapidly has become an important asset. A literate person in today's busy world has to go through more reading material in a week than his great grandfather probably covered in a year or two.

The college student finds it difficult to cope up with the textual and reference material; a lecturer feels upset when he sees that his whole day goes in reading and still his work is pending; an executive is not able to finish his daily work which involves plenty of reading activity, and a physician feels that he is not able to keep up with his professional journals. Similarly, many others whose job mainly involves reading find it really difficult to remain up-to-date in their area of work due to their slow reading speed

The proposition that reading is an essential tool in exploring the world of work and in refining the thinking skills necessary for keeping in step with an increasingly technological society—an idea long subscribed to in the field of reading—now assumes a special significance It seems quite reasonable that reading will be a necessary function as long as we continue to use the printed media to communicate ideas in our work and even in our leisure hours. There are no areas in either the academic world or the world of work in which reading does not play a crucial role Reading is a primary avenue to all knowledge. Since the development of vocational and intellectual skills pervades almost all the subject areas, the need for better reading skills is axiomatic. Knowledge explosion demands fast readers. Despite the compelling need for faster and more effective reading in modern life, few people have learned to read as well as they could or should. Obviously, there is economy in being able to read at a rapid rate. Rate of reading can be improved with training. Numerous studies in the area of reading have indicated that not only can the rate be improved, but the comprehending reader can also learn to read effectively at many times the earlier rate.

Some investigators report additional values from training in rapid reading, increased accuracy of perception, more accurate and more rapid visual discrimination, better visual memory, orderly left-to-right progression, wider span of apprehension, better attention, organization and concentration, better work habits, better visual focus, shorter reaction time, greater self-confidence, fewer regressions, a decrease in number and duration of fixations, reduction of vocalization, more rhythmical reading, and better comprehension.

When most of us were in school, we heard nothing about rapid reading. Now the time has come when the phrase "rapid reading" seems to be on the lips of almost everybody in the field of education

The goal of the rapid reading programmes is to simplify the mastery of those skills which, to a great extent, contribute to overall reading efficiency.

If we want to prepare for a future characterized by rapid change, we must be sufficiently equipped to communicate at all levels, competently solve numerous problems through a critical approach, while effectively managing a vast conglomerate of steadily increasing knowledge The exceedingly complex interwoven process known as rapid reading is indispensable to these skills. A race for knowledge, challenging our intellect, has now started, when slow readers will be the losers and efficient readers are going to win. Modern times demand a purposeful and fast movement.

An amusing story is told about Puccini, the great Italian composer. One day he dashed out of his flat in Milan, fifteen minutes late for an appointment. As he rushed up the street he encountered an organ-grinder who, under the spell of warm Italian sunshine, was drowsily turning the crank of his organ What disturbed Puccini was that the 'aria' which the grinder was so indolently reproducing was one from his own "Madame Butterfly". Puccini, irritated by the agonizingly slow movement of his masterpiece, cried out impatiently, "Heavens, man, faster, faster!" without slackening his own pace. As he ran, however, he momentarily attempted to set a tempo by waving his right hand rapidly back and forth in true maestro fashion. The next week Puccini again met the same organ-grinder. This time he was grinding out "Madame Butterfly" in a rapid, sprightly tempo which Puccini's hand had indicated earlier.

For those who are interested in speeding up their reading, this story carries a great message We have become habitually slow readers, though each one of us has capacity to read faster. A time has come when someone should come to our help and shout at us "Heavens, man, faster, faster!"

The need of the hour is to arrange rapid reading courses for various categories of learners. These courses demand interested, motivated and willing individuals ready to undergo systematic instruction on rapid reading methods and mechanics under the constant supervision of a teacher who should be dedicated as a true patriot, selfless as a family doctor, sensitive as an artist, ready to sacrifice, to support, to guide, to inspire with enduring courage, patience, and working as a walking-encyclopedia. ☐

Organisms in the Environment Complex

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ERNST HAECKEL (1869), a German zoologist, for the first time used the word 'ecology', This word is a composite of two Greeks words, 'oikos', meaning home, and 'logia', that is study One of the important branches of biology, ecology is concerned with the interrelationships of plants and animals with the environments in which they live. In other words, it deals with the home-life of living organisms. The environment refers to all the things outside the organism, that directly influence its life and growth The life of the organism and its environment cannot be regarded as independent of each other. It is in its own environment that a particular organism can carry out its various physiological processes. In fact, 'environment' is closely related to 'habitat.' The term habitat has also been derived from a Latin word, meaning 'it stays'. The vegetation of a river-bank will be quite different from the vegetation of a semi-arid or sandy place. Plants and animals, all over the world, are found in varied situations The species in different parts of the earth vary from each other Such diversity is due to differences in the environment.

The living and non-living things in the environment (biotic and abiotic) have a direct relation with the existence of organisms. Ecological factors vary grealty and that is why the plants and animals found in different parts of a country are so different. Food and the presence of other organisms in the environment are the most important biotic factors for the plants or animals in a particular habitat. Availability of food affects population density Where it is abundant, the population density of organisms increases. Where it is scarce, there develops a keen competition among the organisms and this directly affects the population density. Certain species eat some other species and this affects their population. In the case of plants the ready food is not an environmental factor. Most of them are producers and for them sunlight, water, carbon-dioxide and mineral salts present in the soil become the environmental factors. There is also every possibility of their being eaten by herbivorous amimals, destroyed by micro-organisms like bacteria, viruses, etc.

Several other environmental factors are grouped under abiotic factors. These are the climatic, topographic and edaphic factors. Under climatic factors the aerial environment—light, wind, temperature, humidity of atmosphere and precipitation —affects the organisms. The form and behaviour of the surface of earth, for example its altitude, slope, exposure to light, wind, etc. come under topographic factors. The edaphic factors are those concerned with the soil Both the physical and chemical nature of the soil are responsible for a particular type of vegetation in a locality. It may be a matter of interest that radioactivity is also one of the abiotic factors now known to us. In recent years radioactivity has increased in the environment due to nuclear-power production. If radioactive substances somehow get accumulated in the body of an organism, the results are disastrous. Such radioactive substances send forth radiation which kills the living tissues. If such a radioactive plant or animal is eaten by another organism, a part of the radioactive substances present is transferred to it All these abiotic factors affect, the organism directly or indirectly Living space is a very imortant abiotic factor. Every organism needs space to live in. Due to crowding, plant or animal populations cannot be stabilized and there is constant competition for survival.

Two types of organism populations may be recognized—single-species population and mixed species population. A single-species population is that in which only one species of plant or animal is found. In a mixed-species population several species of animals and plants are found Population decreases as a result of mortality and increases as a result of natality. Sometimes, within a boundary, the population increases as new individuals enter the area. A decrease in the population of a particular place may also be due to individuals crossing over from the old territory. These factors thus determine the population density of any organism in a place at any particular period. Overcrowding may affect organisms in many ways. It brings fishes to cannibalism. Certain birds which breed in open country stop laying eggs in overcrowded conditions. Certain plants react to each other in many ways. There is competition for water and soil-minerals and light As a result of this competition the vigorous and better-adapted plants become dominant and the weaker ones are suppressed It is also due to the taller and stronger trees that smaller plants change their habits to some extent, Each species of plant and animal finds its niche in the environment and is nurtured by it

The biotic and abitoic factors combine to make a very complex environment for animal and plant communities. They react to low and high temperature, intense and feeble light, excessive rains, a long spell of dryness, arid and humid conditions, the chemical composition of the soil and various other environmental conditions.

They may or may not be able to tolerate adverse conditions for a long time. Goods (1931) threw light on the theory of tolerance He said, "...a species is able to occupy only those parts of the world where the external conditions are within those of its range of tolerance" The area which a species can occupy by virtue of its tolerance is termed as its 'potential area'. The size of the potential area will tend to vary with changes in external conditions. The theory was asserted on the hypothesis that environmental change has been more rapid in the recent past than change in tolerance or morphology. In other words the view is that progressive adaptation to external change has not had time to occur *in situ* Evidence is there to show that most of the plants do not possess unlimited tolerance nor the capacity to respond by adaptation to changing environments as rapidly as these changes occur. This is the nucleus of the theory Wulff (1964) has said: "If both tolerance and climate changed at an equal rate, there would be no plant movement and the entire theory would collapse. But generally this does not happen because evolutionary changes in a species proceed [more] slowly than changes in habitat conditions. The movement of flora shows that these changes are not simultaneous. They may coincide in time and rate only in case there occurs a mutation affecting the tolerance of a species." The theory has been established cytologically by examples of leguminosae (a family of plants) furnished by Senn (1943) Cain concluded that "polyploidy is of importance in the theory of specific tolerances because it results in changed reaction norms (patterns or types) and thus allows the population to occupy a different area in which the ecological or climatic conditions deviate from those to which the diploids were adopted".

The approximate tolerance limit of an animal or plant determines the types of environment in which it can survive for long. This does not ensure that the individual will become a part of the ecosystem. Ecological studies are useful for ecologists to explain the geographic distribution of plants and animals. The survival of organisms, according to their tolerances in a particular place, determines the flora and fauna it will have.

In the environment complex, plants and animals are subjected to various strains and stresses. Population density is one of these because of which there develops a competition among organisms. to survive by adapting to the environment. As a result some minute distinctive features develop in them. Those species that adapt to the environment survive. The ones that cannot adapt perish. Thus, in the course of evolution, several thousand species perished. The fossils of numerous animals and plants, belonging to different geologic eras prove that the ill-adapted species, once the luxuriant flora and fauna of the earth, were gradually wiped out from its surface. The giant dinosaurs (a triassic animal) and the huge lepidodendrons (a coal-age tree) may be cited as two examples out of many. Those organisms, which could survive in different environments, due to additional adaptive features, showed great diversity of form. Both animals and plants have been subjected to great diversification and the result is the varied types of fauna and flora in different parts of the world. The bigger the region and the greater the environmental diversity, the greater will be the variety of fauna and flora. Many new types are thus evolved to suit environment complexes. This phenomenon is known as adaptive radiation, which influences the diversification of animals and plants to suit their environments In the words of W.H. Dowdeswell, adaptive radiation is "the evolution of a group of organisms along a number of different lines involving adaptations to a variety of ecological niches." ☐

Learning To Do : Report of the National Review Committee

Dr. P C Chunder, Union Education Minister, in his capacity as President of NCERT, appointed a National Review Committee in October 1977 under the chairmanship of Dr. Malcolm S. Adiseshaiah, Vice-Chancellor, University of Madras, to review the curriculum of the +2 stage of school education with special reference to vocationalization of education. Given below are excerpts from his report

TERMS OF REFERENCE

...The terms of reference of the National Review Committee for the Plus-Two Curriculum were as follows:

(*i*) To review the NCERT's document "Higher Secondary Education and its Vocationalization" and to suggest modifications therein, if any.

(*ii*) To study the syllabi and courses of the CBSE and a few State Boards with special reference to a few selected vocations and to recommend appropriate syllabi.

(*iii*) To recommend a plan of action for introduction to vocationalization at the secondary/higher secondary stage.

It was further desired that the Committee in formulating its recommendations may also keep in mind the need for providing vertical mobility to students completing the +2 stage with vocational courses and recommend ways and means for promoting such mobility.

The Committee was asked to submit its Report within three months...

HIGHER SECONDARY EDUCATION . ITS IMPORTANCE AND SCOPE

Scope

The higher secondary stage should be planned as comprising two broad learning components which may be termed the General Education Spectrum and the Vocationalized Spectrum, with many crossover points during and after this particular stage.

The General Education Spectrum of the Higher Secondary school is for the general formation of the person and personality through the learning centred around languages, social or human sciences disciplines. Its aim is essentially to prepare the student for university education in the arts or sciences or for professional studies This is the bridge facet of the plus 2 stage. This is also the phase of the educational systems in which there is a built-in continuity with the past, the main innovation being learning acquired from socially useful productive work.

The Vocationalized Spectrum of the Higher Secondary School is learning of a skill or a range of skills through study of technologies related sciences, and farm or other practical work. This vocationalized learning must be distinguished from technical/vocational education imparted in the I T I's, technical high schools, agricultural or industrial polytechnics, where a certain level of skill as craftsman or technician or extension agent is aimed at and attained The vocationalization spectrum that is referred to, embraces in the Unesco language "these aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, aptitudes, understanding and knowledge relating to occupations in the various sectors of economic and social life. Such an education would be an integral part of general education and a means of preparing for an occupational field and an aspect of continuing of education." This spectrum refers back to the terminal character of formal schooling that it represents for over 50 per cent of its entrants. Given the unemployment levels of of I.T.I craftsmen and polytechnicians referred to earlier, expansion of technical/professional educational institutions of this nature is not recommended. The recommendation about the Vocationalized Spectrum of the plus 2 stage rests, however, on the truth that while education cannot produce jobs, vocationalized education makes it more likely for an indvidaul to get a job or to be his own master by either starting a new productive activity or a service which may satisfy a felt-need of the community. By broadening the educational horizons for the individual, it enables him to reach higher levels of achievement through self-learning. Since the content and scope of vocationalization must be in conformity with national goals and the specific needs of the local community at every given point of time, the vocationalization of higher secondary education recommended here aims for the next five years at increasing the employment potentials of the people through education for self-employment, with emphasis on agricultural and related occupations including tiny, small, cottage and agro-industries and through preparation for specific competencies in different vocations

Futures

This report is quite deliberately dated. It is meant to guide higher secondary education planning for the next five to ten years.

THE COURSE PATTERN : THE GENERAL EDUCATION COURSE

The Pattern

It is recommended that the pattern of the course and the distribution of time for teaching the General Education Spectrum should be :

	Course	*Time distribution*
1	Language(s)	15 per cent
2	Socially Useful Productive Work	15 per cent
3.	Electives	70 per cent

It is recognized that this general scheme must be applied with certain amount of flexibility, allowing individual States and territories and even individual schools to adapt the courses and the distribution of time to local conditions and pedagogic perceptions.

Language(s)

In the general pattern put forward, the implication of the distribution of time for language-learning is that only one language can be learnt. That language will be the one of student's choice depending on the offering available at the school and for the vast majority of the higher secondary schools run or supported by the States or territories, it is likely to be the regional language. The need for learning a second, preferably an international, language can be met by resorting to the study of an elective and the operation of the credit system to be referred to later.

Socially Useful Productive Work

The same time-distribution, viz., 15 per cent of the working week, is applied to learning through Socially Useful Productive Work. The objectives, sample plan of work and the mode of operations of the part of the curriculum SUPW to be executed by the teachers and the students are briefly set forth in the following paragraphs.

Socially useful productive work (SUPW) which is of a practical nature and undertaken under appropriate supervision and planning, will help achieve, *inter alia*, the following objectives

(*a*) Inculcation of positive attitudes to work in the students,
(*b*) Identifying themselves with the community by rendering Social and Community Services;
(*c*) Development of the habit of co-operative work,
(*d*) Making the community conscious of scientific advancement and help it develop a scientific outlook;
(*e*) Learning to apply one's classroom and vocationalized knowledge to solve day-to-day problems of the community;
(*f*) Participation in nation building activities; and
(*g*) Realization of the goals of the State and national development.

To develop the proper attitude towards rural development and community service, the pupils at the higher secondary educational level must be provided with motivation and training opportunities. They should be given orientation training for 4-5 days in social service, understand its meaning, method and outcomes, and the means of developing rapport with the local community. The concerned people, in the fields in which the pupils are interested, can be brought to the school campus to address and motivate the pupils The Heads of the higher secondary schools can be trained in different areas and they can train their teachers in their own schools in motivating the pupils, planning the programmes, carying out and evaluating them. The teachers should be "all purpose' guides for the effective participation of pupils in the programme.

The project areas for SUPW can be

selected according to the convenience of each school, its location, rural or urban, its background and experiences More particularly the selection of the area will depend on :

(a) Nearness of the area to the school;
(b) Cooperation of the selected community, and
(c) Understanding the locally available programme.

While selecting the area, the teachers should understand the extent of cooperation of the community and its interest in the welfare programmes. The project area should be one where resources for the activities can be easily mobilized, because the school and pupils cannot spend on transport or expensive programmes. Simple projects can be taken up by the pupils with the available resources and which are within the capacity of the pupils involved. The participation of the local people in all stages of the programme, is a must for the success of the programme.

In planning a programme, the following decisions are important . What is to be done, who will do it, for what it is, when and how it will be done. If the planning is to be successful, all the following components must be considered

(a) Baseline survey and locating needs and resources.
(b) Giving priorities to the needs
(c) Outlining the programme
(d) Conducting the programme.

A sample survey should be conducted by the pupils in their selected project areas, to help them to understand the needs of the people, the resources available in the area, and decide what could be done by them. With the help of all the teachers in the school, and based on the needs of the people, programmes can be outlined for the specified period of work (two years) in the community. Annual work plans can be prepared by the teachers as a guide post for both teachers and students.

The programmes selected must be suitable to the age level and competencies of the pupils and the needs of the community. Both general types of productive service programmes and specific productive projects related to the subject matter of each student can be undertaken. The following general programmes can be undertaken by all the pupils irrespective of their subjects (Electives) of study.

(a) Fact finding
(b) Tree planting
(c) Cleanliness and Sanitation
(d) Deepening ponds, construction of contour-bounds, community halls, road laying
(e) Small Savings Drive
(f) Health and Nutrition Education
(g) Celebration of national days and festivals
(h) Organizing film shows
(i) Organizing libraries/book banks and mobile laboratories
(j) Hospital work
(k) Conducting programmes in balwari (games and music)
(l) Coaching children
(m) Adult literacy
(n) Camps in the adopted area

Students who are pursuing language studies should take up Adult Education under Socially Useful Productive Work

A list of some subject-matter related activities is set forth :

(1) *Indian Languages*

(i) Writing short stories and skits

(*ii*) Developing leadership qualities through elocution, debates

(*iii*) Developing artistic tendency-painting and other fine arts

(*iv*) Promoting national integration

(*v*) Encouraging them to read newspapers—knowledge about current affairs

(*vi*) Adult literacy and adult education

(*vii*) Coaching school children.

(2) *History*

(*i*) Dramatization Programmes

(*ii*) Screening of historical films

(*iii*) Publication of Historical Leaflets and Booklets

(*iv*) Organization of Exhibitions of historical value

(*v*) Debates and Oratorical competitions as regards the political set up of the country

(*vi*) Discussions and utilization of local resources

(*vii*) Encouraging the pupils to adopt such hobbies of educational value.

(3) *Geography*

(*i*) Radio broadcasts on weather conditions

(*ii*) Making the villagers understand the radio broadcasts

(*iii*) Working models of volcanoes and earthquakes

(*iv*) Survey of the land and road network

(*v*) Attending the Panchayat Union Meetings and discussions

(4) *Mathematics*

(*i*) Encouraging the pupils to learn mathematics by pointing out its use in the world at present

(*ii*) Helping the adults and unemployed to run a cooperative store selling goods at controlled price

(*iii*) Teaching them to make toys with simple models like triangles, spheres etc

(*iv*) Helping them to discriminate between British units, and metric system.

(*v*) Helping them to be aware of the units and measurements so that they cannot be cheated in shops This can be done by actually showing the weights, scales and meterscale

(5) *Physics*

(*i*) Giving the basic knowledge about how to prevent electric shock accidents

(*ii*) Giving the knowledge about how lightening and thunder occur and what are the uses of lightening and thunder and the thunder arrester

(*iii*) Teaching how we receive the sound from the radio which is relayed from the Radio Station

(*iv*) Preparing hot water with the help of solar heat or energy

(*v*) Giving the knowledge about how to produce artificial rain

(*vi*) Teaching how to get electricity from the water and steam

(*vii*) Giving the basic knowledge about how to operate the machines like washing machine, grinding machine, electric cookers, etc

(*viii*) Giving the knowledge about how the sound is produced from various sound instruments.

(6) *Chemistry*

(*i*) Preparation of soap and washing soda

- (*ii*) Explaining the uses of Dettol and Phenyl for cleanliness
- (*iii*) Preparation of tincture and simple ointments for wounds
- (*iv*) Preparation of Dyes
- (*v*) Explaining the preparation of Bleeching powder
- (*vi*) Explaining the equipping technique and use of gobar plant in the houses making use of animal waste.
- (*vii*) Explaining the uses and preparation of ammonium nitrate
- (*viii*) Explaining the fixation of Nitrogen
- (*ix*) Explaining the uses of insecticides
- (*x*) Demonstrating the methods of purifying water.

(7) *Biology*

- (*i*) Helping the farmers to get rid of the insect pest
- (*ii*) Learning methods of vegetative propagation
- (*iii*) Introducing modern techniques of incubation in poultry
- (*iv*) Practising the way of getting uniform fraiting and blossoming through simple techniques using chemicals (Hormones)
- (*v*) Leathering of economically important animals
- (*vi*) Making them aware of economic Zoology
- (*vii*) Providing them the knowledge of crop rotation
- (*viii*) Helping them to know about the various sources of Nitrogen manure in the form of Nitrogen yielding plants (Legumes) and easily available cultures to increase the yield
- (*ix*) Making them aware of contamination

(8) *Home Science*

- (*i*) Raising Kitchen garden
- (*ii*) Helping the rural people to have poultry units and bee-keeping
- (*iii*) Organizing rural balwari
- (*iv*) Low-cost nutritious foods demonstration
- (*v*) Improving arts and crafts
- (*vi*) Make use of compost pits
- (*vii*) Pest control measures
- (*viii*) Nutrition education through various games

Evaluation is an important aspect of planning and execution of the SUPW programmes in the schools. From the beginning of the programme, each step needs evaluation. For the evaluation of each student socially useful productive work internally, the following criteria and marks are suggested as an illustrative guide :

Criteria	*Weightage*
1. Personal qualities such as interest, initiative, commitment and dependability	20
2 Attendance and punctuality	10
3 Human relations—Ability to create rapport and to identify and work with the community and team	10
4 Skills and competences, ability in communication, organizational abilities	20
5 Achievements (results outcome)	10
6 Report on work done	30
	100

The list of electives for the General Education Course comprises the following subjects·

1. Language(s) other than the one offered as a compulsory language
2. Mathematics
3. Economics
4. Chemistry
5. Political Science
6. Geography
7. Biology
8. Sociology
9. History
10. Philosophy
11. Fine Arts
12. Physical Education
13. Commerce and Accountancy
14. Psychology
15. Physics
16. Home Science

N.B.

(i) The Sociology syllabus of CBSE might be subject to a further review by a group of Sociologists, particularly those who have framed questions on the present syllabus.

(ii) The above list is only suggestive and more subjects may be added by the States depending upon their local needs. For instance, Agriculture and Engineering Drawing could be offered as General subjects with their implications for SUPW carefully and fully worked out.

(iii) While a minimum of 3 electives is considered essential for every student, the candidates may also offer, if they so wish, an additional subject from the given list.

THE COURSE PATTERN : THE VOCATIONALIZED COURSE

The Pattern

It is recommended that the pattern of the course and the allocation of time for the vocationalized spectrum be:

	Course	*Time allocation*
1	Language(s)	15 per cent
2	General Foundation Courses	15 per cent
3	Elective subjects	70 per cent

Language (s)

Within the allocation of 15 per cent of the hours of instruction per week, learning of only one language will be possible depending on the facilities available in each school for teaching the language. Some thought should be given with regard to the content of the language course in relation to the content of the vocationalized courses chosen and/or offered.

General Foundation Courses

In order to provide a more rounded course to those who chose vocationalized electives, a general foundation course which provides a broad background area of knowledge of life and history is recommended. Such a course will equip the student with the minimum knowledge which will broaden his outlook, and provide him with essential information about various inter-related matters which are helpful for successfully pursuing 'any work on his own. Vocationalized knowledge and the development of related skills are *per se* not enough to enable a person to enter life and set up his own establishment, however, small it may be. The general foundation courses will fill in this gap, giving general information on the history of science and technology, on the development of Indian culture or on the elements which are common to different vocational elective subjects. With regard to the latter, for example, the courses could include units on marketing of produce, entrepreneurship, cooperatives, credit facilities, management of small farms, small cottage industries and small establishments, adaptability to changing situations and general exposure to world trends. Special emphasis should be laid in the general foundation courses with regard to the requirements for rural vocations

A specimen syllabus of this general foundation course based on the interrelated concepts of education, work and development related to productivity in different vocations is given in the following paragraphs which will need to be adapted to each set of local circumstances by State Boards. The course is meant to be taught for 2 years, 4 to 5 hours per week, Part 'A' of the course is common to all vocations From Part 'B', the unit most related to the particular vocations may be chosen.

The course content will comprise Part 'A' and Part 'B'

PART 'A'

(1) Gandhian Concept of Education
(2) Agriculture in the National Economy
(3) Rural Development
(4) Problems of Urban Slums
(5) Health, Hygiene and Sanitation

PART 'B'

(Choose any one of the following 9 sections as appropriate)

(1) Small-Scale and Cottage Industries
(2) Entrepreneurship
(3) Cooperatives and Credit Facilities
(4) Marketing
(5) Sales Promotion
(6) Unemployment, Under-employment and Man-Power Utilization in India
(7) Human Relations
(8) General Exposure to World Trends and Changes
(9) Environmental Protection and Development

Vocational Electives

Seventy per cent of the weekly hours of instruction is allocated to the teaching of vocational elective subjects—about 50 per cent of these hours should be spent on practical work, with a certain margin of flexibility varying from vocation to vocation Special attention has to be given to the self-employment factor Vocational education at this level should, as far as possible, not duplicate what the ITI's, or technical higher secondary schools are at present offering. As the main thrust of the proposed vocationalization is on rural, agricultural and related vocations, the question of spending a minimum of 2,000 hours as is done in the case of technical vocations at present, should not normally arise It should suffice if the desired competency can be acquired in the given time in the particular vocation The course in vocational areas should be drawn up in such a way that the empolyability of the students will be enhanced. The duration of a vocation course should normally be two years in so far as the instruction in the schools in the formal system is concerned The courses requiring lesser duration than two years, may be pursued through non-formal systems, such as part-time and evening courses, correspondence courses, etc and the institutions should be free to offer such courses through non-formal channels.

Agriculture and Related Vocations

Education for farming and rural living is an important aspect of the total educational programme in India. Vocational educational agriculture can fill a conspicuous gap in the education of farm boys and girls. Vocational agriculture is directed towards strengthening the farm and the farm family in its role of producing food, educating youth, contributing to the personal development of individuals, and helping them to become competent farmers and responsible rural citizens. It is proposed that thosestudents who offer vocational course in agriculture should study one course on fundamental principles of agriculture relating to crops, horticulture, animal science and allied developmental work done in the field of agriculture. Formal education in agriculture given by agricultural schools, colleges and universities has trained men predominently for jobs and only a small proportion of those trained have gone back to their farms. Therefore, it is essential to provide a series of courses for the future farmers so that they can select vocational subjects according to their own choice and need, which will be useful to them in their practical life

(*i*) Inland fisheries
(*ii*) Basic programme in fruit and vegetables
(*iii*) Agriculture
(*iv*) Farm Mechanics and Engineering.

(*i*) Soil and Water Conservation
(*ii*) Repairing and Maintenance of farm Machines
(*iii*) Post-harvest Technology
(*iv*) Agri-based and Agro-based Industries
(*v*) Agricultural Chemicals
(*vi*) Animal Management-based courses
(*vii*) Horticulture-based courses
(*viii*) Soil, Water Testing and Management
(*ix*) Co-operative Marketing/Agricultural Produce Marketing
(*x*) Small Farm Management and Rural Construction Technology

The following short courses are also recommended ·

(*a*) Fuel and Energy
(*b*) Bee-Keeping (Agriculture)
(*c*) Sericulture
(*d*) Forestry and Forest Products
(*e*) Commercial Crops
(*f*) Agricultural Economics

(*xii*) Related Subjects: Related subjects may be taught to strengthen the vocational courses. These subjects may be agricultural physics, agricutural chemistry, anthropology, plant pathology, human and animal nutrition etc, instead of physics, chemistry or biology.

Non-Agricultural Vocational Courses

The following vocational courses have been identified and an outline of the course content has also been indicated against each. The trades being handled by the ITI's are not included and the list of vocations to be offered by ITI's is in addition to this list.

Business and Office Management

(*a*) Banking
(*b*) Office Management and Secretarial Practice
(*c*) Stenography and Typewriting
(*d*) Accounting and Auditing
(*e*) Telex and Telephone Operator
(*f*) Office Machines Operator

(*g*) Marketing and Salesmanship
(*h*) Purchasing and Store Keeping

Para Medical

(*a*) Multi-purpose Health Workers
(*b*) Orthopaedic Technician
(*c*) Ophthalmic Technician
(*d*) Laboratory Technician (Medical)
(*e*) Dental Technician
(*f*) Dental Hygiene Technician
(*g*) Radiology Technician
(*h*) Physiotherapy Technician
(*i*) E C.G. and E.E.G. Technician
(*j*) X-Ray Technician
(*k*) Dietician Assistants
(*l*) Technician for Artificial Limbs
(*m*) Health Extension Worker

Educational Services

(*a*) Museum Keepers
(*b*) Library Assistant
(*c*) Laboratory Assistant
(*d*) Audio-Visual Technician
(*e*) Teachers (Primary Classes)
(*f*) Educational toy makers
(*g*) Preservation of Books and Manuscripts
(*h*) Balwari Teachers
(*i*) Music and Drawing Teachers

Local Body and Other Services

(*a*) Village level worker
(*b*) Development worker
(*c*) Extension worker
(*d*) Block extension educator

Journalism

(*a*) Editorial assistants
(*b*) Newspaper reporters

Home Science Related Vocations

(*a*) Textile Design
(*b*) Hotel Reception and Management
(*c*) Interior Decoration
(*d*) Laundry
(*e*) Food Processing and Preservation
(*f*) Dress-making and Designing
(*g*) Also refer to the vocations set forth above under dietician assistants, educational toy makers, Balwari teachers, village level workers (women) extension workers (women).

Other General Services

(*a*) Commercial Art
(*b*) Photography
(*c*) Printing and Lithography
(*d*) Pottery
(*e*) Ceramics
(*f*) Tourist Guides
(*g*) Hairdressing.

Flexible Streaming

One of the issues on which further thought might be given relates to the question of streaming of students into the General Education and the Vocationalized Education Spectrums. It is recommended that there be no rigid streaming of courses into the General Education and Vocationalized Education Spectrums. Each school should be allowed to offer such General Education and Vocationalized Courses in accordance with the facilities available and the demands in the region The student on his side should be free to offer either the General Education or Vocationalized Courses or a mix of the two, particularly in relation to the vocational courses. There should be in-built elasticity in the choice of the General Education or the Vocationalized subjects.

Models of Elective Subjects

The recommendation on streaming leads on logically to the elective models.

It is recommended that three models in the offering of elective subjects by schools be envisaged and implemented:

(*i*) Those offering only the General Education Spectrum and its elective subjects;

(*ii*) Those offering only the Vocationalized Education Spectrum and its elective subjects; and

(*iii*) Those offering both General Education and Vocationalized Education Courses and their elective subjects.

The third model, of schools offering both the spectrums, will be the generality for the schools in the rural areas where the offerings will include some of the courses under General Education and parts of agriculture and courses in related subjects. For schools located in the urban area, which by and large offer General Education Courses, some vocationalized courses like stenography, accounting and auditing, business and office management, which are related to the general education elective subjects such as commerce, economics and mathematics are relevant. Both to adhre to the philosophy of the importance and validity of work based vocationalized learning and to avoid creating a new derogatory distinction between schools, the third model should be the generality at least for the Sixth Plan. Thus, for instance, if good urban schools which are usually the pace setters of book based learning do not offer any vocational cour ses, despite their learning attainments under SUPW, vocationalization may come to be classed as not being the hallmark of first rank schools

Apprenticeship and Recruitment Policy

Apprenticeship facilities should be extended to all the students who complete education in vocational streams if they desire to benefit from such training. Suitable rebates of training should be worked out, taking into account the contents of the curricula, depth of knowledge and the levels of skill competence This will have considerable influence on those who have joined the vocational streams at present, and are doubtful about the extension of this facility

The largest proportion of the working force belongs to the middle level employment, whether it be in the agriculture/agro or other industries or in trade and business or hospitals. An analysis of various advertisements for a variety of jobs indicates that about 80 per cent of them prescribe university degrees as essential qualifications, irrespective of the needs and recruitments of the job. Most of these positions in fact do not need university degree skills. What is needed often is adequate skills and proficiency to perform duties efficiently and this required proficiency can be secured through suitable vocational training without a university education. It is recommended that the recruitment policy of the Government as well as public sector organizations should be revised and job requirements should replace the university degrees as essential qualifications. Vocationally qualified persons should be preferred to graduates, and be entitled to the pay scales available to the graduates as long as the jobs performed are the same or similar Also such persons should be eligible for the higher positions in the ladder, either on the basis of departmental tests or improvement of qualifications through correspondence or evening courses or blocktime training

Vertical Mobility

The recommended apprenticeship and recruitment policy are part of a package recommended to improve the prospects of the majority of those who enter the plus 2 stage and terminate their formal schooling after acquiring some vocational skills. The vocational courses should not be a dead and in themeselves. For those who wish to continue and improve their qualifications there should be a provision for allowing them admission to the 2nd year of the Agricultural Universities or the 3rd year of the Polytechnics or of Nursing Colleges and other such institutions where admission requirement is a ten-year school pass. For admission to the related professional courses, it would encourage vocationalization if at least there is a provision to enable the vocational Class XII leavers to seek admission to the professional courses after the person has acquired actual job experience of three years or more. This is the practice already followed in some institutions, such as the Indian Institute of Management, and may be followed profitably by other professional institutions of higher learning. The curriculum and the structure of courses of the professional institutions—specially for the first year of the course—will have to be reformulated in such a way that there is a provision for special coaching of the students who come from the job experience, to make up the deficiency, if any The universities should not close the doors for these students who wish to pursue further studies. The universities may prepare package pre-requisite courses to make up the deficiencies of students who have pursued vocational courses and wish to pursue higher courses of study In Class XI also students who have completed their studies in vocational or Junior Technical Schools and ITI's should be accepted for admission Package pre-requisite courses should be drawn up to counter and the deficiencies of such students entering Class XI and XII.

To ensure coordination, cooperation and evaluation, the National Council of Vocational Education, State Councils of Vocational Education and local bodies are recommended. ☐

Educational News

Volume IV May 1978 Number 1

International institute for distance learning systems

A new International Centre for Distance Learning, the first of its kind in the world, is likely to be established in Britain. It will provide a focal point for the world's distance learning institutions, offering training programmes, advice on techniques and materials and research.

Agreement in principle was reached at a meeting of the heads of 16 world-wide distance learning institutions held in Northamptonshire. They unanimously supported a proposal to site the new centre on the campus of the Open University at Milton Keynes.

The Centre will not merely cater to the existing distance learning institutions, it will also offer advice to countries planning to establish such ventures. Advice on materials, systems and methods will be available, and library and resource centre will be created.

A new journal on continuing education

THE PUBLIC Enterprises Centre of Continuing Education, New Delhi, has brought out a quarterly journal on continuing education, *Human Futures*, mainly addressed to professionals in public enterprises. This is in collaboration with the International Council for the Quality of Working Life.

NEWS FROM THE FIELD UNITS

BHOPAL

Non-formal Scheme in Madhya Pradesh

The SIE Bhopal is launching a non-formal education programme in Madhya Pradesh. The first phase started in February 1975 with a total number of 50 centres in ten districts.

In the second phase 45 more centres came into operation through Government Basic Training Institutions. In the third phase 45 more centres were opened in two districts for intensive work. One more centre has been opened through a private basic training institution. Thus 141 centres are working with 4239 students on roll.

So far the scheme has been financed by a non-government fund called the Madhya Pradesh Balika Shiksha Nidhi. An amount of Rs. 1000 is given to each centre every year to meet the incidental expenses. Each student is given textbooks and exercise books free of cost

There is a provision for intensives to the teachers at the district centres, every teacher is paid Rs. 50 per student. This amount is paid in two instalments of Rs. 25 each, the first at the end of the year and the second on the student's passing Class V.

In the Basic Training Institution Centres the whole amount is given to meet the contingent expenditure only as the centre is run by pupil-teachers. The Government of Madhya Pradesh has made a provision of rupees three lakh for the project.

The existing syllabus for the primary classes in the State has been condensed and divided into 18 units. It is not classwise syllabus but an integrated one.

After the completion of each unit, inbuilt evaluation is done and the records are kept. Those who complete all the units appear for the final examination of Class V which is conducted by the District Boards of Primary Examination. They take the exam along with formal school students.

So far 385 students have got through the Class V examination conducted by the district boards.

The scheme is being implemented by the Directorate of Education, Madhya Pradesh, as a part of its total programme The Joint Director of the Academic Wing of the Directorate is looking after the scheme. To make the scheme effective, special cells have been established in the State Institute of Education, Divisional and District Education Offices. Planning, financing and administration of the scheme vest with the Director of Public Instruction.

Curriculum planning, teachers training, academic guidance, coordination, supervision and assessment of the programme have been assigned to the State Institute of Education.

At the divisional level the cells are doing the coordination work. The district level cell is responsible for survey work, locating the needy areas, selecting the personnel for staffing the centres, controlling the contingent expenditure, distributing incentive money and teaching aids to the centres.

The educational background of the entrant is assessed by the teacher and the child is placed in the group homogeneous to his previous level The teacher arranges teaching of these different groups through direct interaction (assignments, pairing and monitor system).

The scheme has been initiated by the Director of Public Instruction, Madhya Pradesh. The State Institute of Education is solely responsible for its implementation.

BHUBANESWAR

Schools to Absorb Unemployed Youths

To provide employment to the mass of unemployed C. T. trained youths of the state, the Department of Education of

Orissa, has taken a decision to set up 300 upper primary schools in the first phase and 500 lower primary schools in the second phase in the rural areas of the different parts of the state during the financial year 1977-78 These unemployed trained hands would be appointed in those newly established upper primary and lower primary schools and they would be given monthly stipends of Rs. 150. They would be confirmed after successful completion of two years service.

Insurance Scheme for Teachers

It has been decided to implement a group insurance scheme for the benefit of about one lakh teachers and non-teachers of all the private educational institutions in Orissa.

Retirement Benefits for Teachers

A decision has been taken to extend the retirement benefits—pension, gratuity and provident fund facilities—to the teachers working in schools under the jurisdiction of the Municipalities and Notified Area Councils in Orissa. This would entail an additional expenditure of one-and-half lakh to two-and-half lakh rupees for the state exchequer and would benefit 4,000 teachers.

POONA

B Ed. Compulsory for Junior College Teachers

As suitably qualified persons are not available the Government of Maharashtra has allowed secondary and higher secondry schools and colleges running the junior college classes to appoint teachers with second class post-graduate degrees in the respective subjects for teaching junior college classes

However, those appointed will have to acquire professional qualifications in teaching, that is B Ed. or a diploma or a certificate in teaching approved by the Education Department, within five years of the date of appointment, failing which they will not be entitled for future increments.

Bombay Student Bags Prize for Teaching Aid

Abhay Sharatchandra Tase, a 16-year-old student from Parle College, Bombay has designed a new physics teaching aid to illustrate the principles of projectable motion and hydrostatics Abhay, who is studying in the eleventh standard, has won a prize of Rs. 1000 in the All India Contest for Physics Teaching Aids for his design. The contest was arranged by the Indian Physics Association.

JAIPUR

Competitions for Inservice Teachers

Vidhya Bhawan Teachers' Training College has started, under the auspices of its Extension Services Department, three simultaneous State Level Teaching Competition in Humanities, Physical Sciences and Social Sciences for inservice teachers of secondary and higher secondary schools of Rajasthan. The Board of Secondary Education, Rajasthan has donated three running trophies and three individual prizes for these competitions. These are the Swarna Padak, the Rajat Padak and Tamra Padak, to be awarded to the winning institutions. The individual prizes for these competitions have been instituted for three best teachers in each of the three competitions respectively. The first competition was held at the Vidya Bhawan T T. College, Udaipur on March 16, 17 and 18, 1978. This scheme is likely to encourage experimentation among in-service teachers.

Dr. Shib K. Mitra, Director, NCERT, formally released the Journal of Language Education brought out by the Department of Languages, RCE, Ajmer. He also inaugurated the III contract programme for English Teachers of the region, organized by the RCE, Ajmer. ☐

Book Reviews

Higher Education : Scheduled Castes and Scheduled Tribes

Sheo Kumar Lal and Umed Raj Nahar, Jainsons Publications, Ratanada, Jodhpur, pp. 345, Rs. 45

THE BOOK is a sample study of the problems, their causes and effects of higher education among scheduled castes and scheduled tribes. In the study, an endeavour has been made, the authors claim, '(1) To know the social background of the college students of scheduled castes and scheduled tribes. (2) To identify the types of colleges and the courses that draw large number of scheduled castes/scheduled tribes students, their study habits, participation in extra-curricular activities, educational and occupational aspirations. (3) To examine (a) the extent of exposure to mass media of communication, (b) politicization, (c) their ideals (d) their outlook on parental authority, (e) friendships circle and experience of discrimination. (4) To understand their impressions about the status of scheduled castes/scheduled tribes, their awareness about reservation of jobs for them, their evaluation of the programmes that the government have undertaken for their welfare. (5) To find out whether hostel has made any impact on their life. (6) To know the impression of the teachers about the scheduled castes, scheduled tribes students including the difficulties faced by the Head of the Institution in this connection' (p. 32).

Efforts have been consistently made by the Government to uplift the backword communities through education. To some extent they have been successful. Literacy has increased from 6.4 per cent (1961) to 9.1 per cent (1971) in the case of scheduled castes and from 3.9 per cent (1961) to 6.5 per cent (1971) in case of the scheduled tribes. Of course, the share of the urban population is more than that of the rural. The percentage of women going in for higher education has similarly increased, but considering the sex ratio it is far less than the desired level. Therefore, greater attention has to be paid towards the women belonging to the scheduled castes and tribes

An unfortunate state of affair prevails at present: despite the constitutional directives contained in articles 38 and 46 the needful is not being done. This is what the 'UGC Annual Report 1975-76' reveals It is pertinent to reproduce here the relevant portion of the report :

> The University Grants Commission in January, 1973 invited the attention of the universities to the guidelines issued by the Government of India, Ministry of Education and Social Welfare, regarding reservation of seats of scheduled castes and scheduled tribes students in universities/colleges which, *inter alia* provide that 20 per cent of the seats be reserved for scheduled caste/tribe candidates and they be also given a concession of 5 per cent marks in the minimum percentage of marks required for admission to any course. *Since it was found that these recommendations were not being implemented satisfactorily by all universities*, universities were again requested in April, 1976 to follow the guidelines and intimate the latest position in this regard (p 112)

However, it is expected that this state of affair will be remedied soon. In the case of universities the UGC has already taken steps in this direction.

The authors draw our attention to some important factors contributing to the failure of governmental efforts in the upliftment of these communities. The study points out that despite, various facilities like hostels, scholarships, training, exemption from tuition fee, reservation of seats in schools/colleges, reservation in government service and stipend, etc. not many students are going in for higher education One of the reasons stated for this in the book is that economic factors prevent the parents from sending their wards to study in schools and colleges; what is more, their wards are an economic proposition to them. Therefore, the authors rightly empasize the need to investigate the circumstances which impede the students of these communities to seek higher education despite availability of all these facilities.

This book consisting of eight chapters with 140 tables contains valuable material which may be used by the future researchers. It also provides a frame for laying down policy to those engaged in the educational development of scheduled castes and scheduled tribes.

The book is an empirical study of the educational progress and problems of scheduled castes and scheduled tribes college students in Rajasthan. Thus it would have been more honest to mention this in the title. As it is, the reader may work for bigger things in the book.

The introductory chapter is a little lengthy. It could have been cut to size by concentrating on the concrete propositions rather than making it a running commentory There is no subject index, essential for quick reference.

The bibliographic note appended to the book makes one feel that the authors have mainly relied on government documents and some field work, and not much use has been made of the secondary material and works of similar nature.

PREM VARMA

☐

Personality Development : A Critique of Indian Studies

Chunilal Kundu, Vishal, 1977, Rs 45

Advanced Educational Psychology

S S Chauhan, Vikas Publishing House, 1978, Rs 25

CHUNNILAL Kundu's book is the first of its type S.S. Chauhan's book though useful for all those who are working either in the field of psychology or education, is primarily meant for M.A., D. Phil. and M Ed. students However, it will interest others too.

The salient feature of Dr. Kundu's book is that it is based on the findings of Indian researchers. This is certainly a source of great satisfaction as Indian scholars have hitherto been considered less competent as compared to their Western counterparts Indeed, there is a tendency among all Indian writers to quote studies of Western scholars only They do not seem to recognize the importance of Indian studies and neglect them altogether while writing a book. From that point of view this book is a welcome departure and I am sure this would encourage others to make use of Indian researches.

The book is divided into well written and compact chapters. Anybody who reads Dr. Kundu's book would learn a good deal about the works dealt with, as these have been very competently dealt with. The findings reported in this book are complete in themselves. At certain places Dr. Kundu has analyzed the findings of two parallel studies and compared them.

Researchers and scholars anxious to know about the Indian concept of personality may find books by Yadunath Sinha, S K. Saksena, M Hiriyanna, etc. rewarding Dr. Kundu has summarized the important points of these books in the first chapter of his book The language is very lucid and vivid The select bibliography is extremely helpful.

While Dr Kundu's book is a praiseworthy attempt to compile and analyze findings of Indian studies of personality, Chauhan's book, being a textbook of advanced educational psychology, deals with the basic principles, theories and laws of psychology and their implications in the field of education. The book is divided into four parts which have further been sub-divided into twenty-seven chapters

As we all know, programmed learning is a relatively new practice for students of psychology and education Therefore the reader ought to know the background Dr. Chauhan gives a brief history of programmed learning and gradually proceeds to more advanced steps like Linear Programming, Crowderian Model, etc. He has at certain places explained the application of psychological laws and theories, in education On page 109, under the chapter 'Theories of Learning', he has explained why a teacher should know about the learning process and how it can help him. The language is simple and the content useful. The most outstanding feature of this work lies in its quality and quantity of information Perhaps it would prove to be a better book than a number of other textbooks available on the subject.

Teaching fundamentals in the higher classes is conspicuous by its absence. It is surprising why such a fine textbook should have left this aspect out. Since in our universities and training colleges almost all the teachers merely refer to the fundamentals and leave them unexplained, the textbooks also do not touch upon them. Indeed, they forget that the student may not know why he is being taught what he is being taught. One notes with regret that this book is also no exception in this regard. Probably the fault lies in our obsession with routine teaching.

Personality studies constitute in important aspect of not only psychology but education as well. In one of their joint papers, Mitra and Kumar (1974) have reported that in India very little work has been done on measurement of personality. Now of course, we have findings on different aspects of personality one needs to know not only a few well-know theories of personality—Jung's theory, Cattel's classification, Eysneck's approach—but the phenomenological approach to personality, and Brudhra, and Walter, social behaviouristic theory as well. Chauhan's book is a step in the right direction.

Neerja Shukla ☐

Educational Research in Indian Universities

	Title of the Project	*Name and Address of the Investigator*
III.	SUBJECT AREAS (370 00)	
III.J.	TOOL SUBJECTS 372.3—372 8	
III. J. 2	The Construction and Standardization of A Diagnostic Test in Algebra (February 1972 to May 1975, not published)	*Ganesh L. Bhirud* 'Shimpla', 3, Madhyamik Shikshak Wadi Jalgaon. PIN. 425001
III. J. 2	Diagnostic Test of Four Primary Operations in Arithmetic (May 1975 to May 1976, not published)	*I N. Chitnavis & P.S Palnitkar* Govt College of Education Station Road Akola
III J 2	Personality Correlates of Attitude Towards Mathematics (October 1973 to November 1973, published)	*K. Kumar & Ram Niwas Gupta* Banasthali Vidyapith Rajasthan
III. J. 2	Content Analysis of VIII Std. Mathematics Textbook (January 1975 to March 1976, published)	*A.W Oak* P.V.D.T. College of Education for Women, 1, Nathibai Tharkersey Road Bombay-400020
III. J. 2	A Study of Failures in Mathematics in Std. VIII (June 1973 to January, 1974, published)	,,
III. J. 2	New Mathematics Teaching—A Non-formal Approach (June 1976 to June 1977, published)	*C.V. Bhimashankaram* Chembur Comprehensive College of Education, Chembur Bombay-400071

III. J. 2	An Investigation into the Use of Aids in the Teaching of Mathematics in Standards VI, VII, VIII and IX in some of the High Schools in Palayankottai and Tirunelveli Areas (June 1975, May 1976, not published)	*Vijayarani* St Ignatius Training College Palayamkottai
III. J. 2	A Comparative Study of the Mathematical Abilities of Boys and Girls of the 9th and 10th Standards of the Palayamkottai Area (June 1970 to May 1971, not published)	*Lucy Ranee Devasahayam* St Tgnatics Training College Palayamkottai
III. J. 3	Common Errors in English (July 1966 to April 1967, published)	*G S Thakur* Govt College of Education Bilaspur (M P)
III J. 3	Analysis of Common Errors in Written English Composition among School Leavers (August 1975, continuing)	*D.N. Bezboruah* Regional College of Education Mysore-570006
III. J. 6	Causes of Students Bad Handwriting with Remedial Measures (July 1965 to April 1966, published)	*G.S. Thakur* Govt College of Education Bilaspur (M P.)
III. J. 7	Improvement in Spelling—An Experiment (June 1965 to June 1966)	*U.T. Lakhdawala* P.V.D T. College of Education for Women Bombay-400020
III K	Cultural Subjects (372 3—372 8)	
III K. 2	Further Expansion and Testing of the Cognate Method of Teaching Dravidian Languages. (June 1973 to August 1975, published)	*V.I Subramoniam* Deptt. of Linguistics University of Kerala Trivandrum
III.K. 2	Pilot Study of Graded Grammar in Dravidian for High School Class (Nov. 1975 to March 1976, published)	,,
III.K. 2	Graded Grammar in Dravidian For High School Classes (April 1975 to March 1976, published)	,,
III.K 2	Cognate Project for Teaching Hindi (Oct 1974 to March 1975, not published)	,,
III.K. 2	A Contrastive Study of the Grammatical Structures of English and Gujarati (September 1967 to Dec. 1971, not published)	*D.A. Ghanchi* Sri B.D College of Education Modasa Gujarat-383315

III.K. 2	A Critical Study of Hindi Composition of the Students of VIII, IX and X of Hindi Medium Secondary Schools of Greater Bombay with a View to Improve their Linguistics Expression (June 1974 to January 1977, not published)	*Mithlesh Saksena* Kailash Kutir 38, Saras Baug Deonar, Bombay-400088
III.K 3	A Study of the Teaching of Hindi in Gujarat State (July 1974 to January 1977, not published)	*J M. Vyas* College of Education Daramt Dist Sabarkanth, Gujarat
III.K. 4	Science Interests of High School Pupils of Kerala and Factors Contributing to the Development of these Interests (March 1968 to October 1972, not published)	*N. Sumathy Kutty Amma* N S S. Trg. College Changanacherry-2
III.K. 4	A Study of Science Examination Result of VIII Standard Pupils of Some Gujarati Medium Schools (Nov. 1973 to April 1975, not published)	*Jayshree F. Shah* Deo Bhuvan, 3rd Floor Gazdar Street, Chira Bazar Bombay-400006
III.K. 4	A Study of Science Laboratories with their Equipments in 25 Marathi Medium Secondary Schools in Bombay (January 1975 to Feb 1976, not published)	*Rawool R W* A/6, Ganesh Bhavan, Senapati Bapat Marg, Mahim, Bombay-400016
III.K. 4	A Study of Attainment of Science Students in Some Science Fundamentals (October 1972 to February 1973, not published)	*Ram Niwas Gupta* Banasthali Vidyapith Rajasthan
III.K. 4	An Investigation into the Teaching of Science (Core) in Some of the High Schools in Tirunelveli and Palayamkottai (June 1974 to May 1975, not published)	*N. Rajendran* Cathedral High School Palayamkottai
III.K. 4	A Study of Reactions of High School Students towards the Learning of Science (November 1976 continuing)	*H G Ramachandra* Lecturer in Education KSEF College of Education Tumkur-572101
III.K. 4	A Study of the Comparative Efficiency of the Use of Improvised Aids Versus Sophisticated Aids in Teaching Topics of Science	*P. Balasankar* Research Scholar Mitraniketan, Vellanad, P O. Tvm

III.K. 5	An Investigation of the Different Units in Geography for VIII Class in Twenty Secondary Schools in Akola Town (July 1975 to May 1976, not published)	*I N. Chitnavis & V S Lonkar* Govt. College of Education Station Road Akola
III K. 5	Any Investigation into the Teaching of History in the High School of Palayamkottai and Tirunelveli Towns (June 1972 to May 1973, not published)	*Kamala A* St Ignatius Training College Palayamkottai-627002
III K. 5	An Investigation into the Teaching of Geography in the High Schools of Palayamkottai and Tirunelveli Towns (June 1974 to May 1975, not published)	*Lily B* St Ignatius Convent High School Palayamkottai-627002
III K 11	A Study of Teching of Physical Education in Hr. Primary Schools in the Area of Khamgaon Panchayat Samiti (July 1975 to May 1976, published)	*I.N. Chitnavis, & H.N. Hirole* Govt. College of Education Station Road Akola
III L 4	VOCATIONAL SUBJECT (370.113)	
III.L. 4	An Investigation of the Teaching Material Used For Teaching of Home Science in Secondary Schools in Akola Town (May 1975 to May 1976, not published)	*I.N Chitnavis, & Asha Devi Telrandhe* Govt College of Education Station Road Akola
IV	PERSONNEL AREAS (371.7)	
IV.M.	STUDENT PERSONNEL (371 8)	
IV.M. 6	Study-Trends of Secondary Students (July 1969 to April 1970, published)	*G.S. Thakur* Govt College of Education Bilaspur (M P.)
IV.M. 10	Survey of the Work and Needs of Trained Personnel in the Field of Guidance and Counselling in Greater Bombay (June 1973 to Feb. 1974, published)	*B.C. Shah* *R.M. Gangal* P.V D T. College of Education for Women 1, Nathubai Thackersey Road Bombay-400020
IV.N	TEACHER EDUCATION (370.71)	
IV.N	A Study of Factors that have Motivatd Trainees who have Selected Teaching as a Career (July 1974 to April 1976, not published)	*Jhinabhai Bababhai Valand* Shri B D. Shah College of Education, Modasa Dist. Sabarkantha

IV.N.	Student-Teachers : A Study of their Background (June 1969 to March 1970, published)	*Bhanu C. Shan* P V.E T. College of Education for Women, 1, Nathibai Thackersey Road, Bombay-400020
IV.N.	Student-Teachers on Cattell's 16PF (published)	*R.N. Gupta* Banasthali Vidyapith, Vanasthali, (Rajasthan)
IV.N. 1	A Study of the Reactions of the Gujarati Student of P.V.D.T. College of Education (1972-1973-74) towards the College Programme (November 1973 to April 1975, not published)	*Josoi Hasumati K* 26/28 Champa Galli, X Lane Bombay-40002
IV.N. 1	Follow up of B Ed. Students of P.V D.T. College of Education for Women (1969-74) (June 1975 to June 1976, published)	*U.T Lakdawala & B.C. Shah* P.V D.T College of Education Bombay
IV.N. 1	A Study of B. Ed Results (June 1969 to June 1970, published)	*A.W. Oak* P.V D T. College of Education for Women, 1, Nathibai Thakersey Road, Bombay-400020
IV.N. 1	Development of a Teacher Attitude Inventory and a Study of Change in Professional Attitudes of Student Teachers (July 1970 to January 1975, not published)	*S.P. Ahluwalia* Banaras Hindu University Varanasi
IV.N. 1	Work Load of Teacher Educators (July 1972 to April 1973 published)	*G.S. Thakur* Govt College of Education Bilaspur (M P.)
IV.N. 1	An Analysis of Teachers' Problems and Their Educational Attainment (1963 to 1964, published)	*K.C Panda* Regional Coollege of Education Bhubaneswar
IV.N. 2	A Study of Observation Remarks on Practice Teaching (June 1971 to June 1972, published)	*U.T. Lakdawala, A. Dabholkar & Rajani A,* P V D.T. College of Education for Women Bombay-400020
IV.N. 2	To Study Objective Tool of Evaluating Practice Teaching (June 1971 to July 1972, published)	,,
IV.N. 2	Analysis of Pupil-Teacher's Performance at the B.Ed. Level (1974-1975, not published)	*K. Ramachandra* Deptt. of Extension Services St Ann's College of Education Mangalore-575001

IV.N. 2	AN INVESTIGATION INTO THE PROBLEMS FACED BY THE STUDENT-TEACHERS AT THE COLLEGE OF EDUCATION IN MADURAI UNIVERSITY AREA (April 1973 to March 1974, not published)	*M.S A. Ibrahim* Thiagarajar College of Preceptors Madurai-625049

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IV.O. 2	A STUDY OF THE FACILITIES OF QUALIFICATION PAY GRANTED TO TEACHERS IN SECONDARY SCHOOLS IN AKOLA TOWN (July 1975 to May 1976, not published)	*I N. Chitnavis & Moha. Hatim* Govt. College of Education Station Road Akola
IV O. 4	ROLE EXPECTATIONS OF TEACHERS (1970-74, published)	*R.N Gupta* Banasthali Vidyapith Rajasthan
IV.O. 4	TALENTED TEACHERS AND THEIR UTILIZATION (July 1972 to April 1973, published)	*G.S Thakur* Govt. College of Education Bilaspur (M P)
IV.O. 6	SCHOOL TEACHERS AND JOB SATISFACTION (published)	*S P. Anand* Regional College of Education Bhubaneswar
IV.O. 6	SCHOOL TEACHERS : JOB SATISFACTION Vs EXTRAVERSION AND NEUROTICISM (June 1975 to June 1976, not published)	,,
IV,O 6	SCHOOL TEACHERS : JOB SATISFACTION Vs STUDY OF VALUES (January 1977 continuing)	,,
IV.O. 6	TEACHER BEHAVIOUR (MICRO-TEACHING) (August 1975 to April 1976, published)	*Krishan Kumar Sharma* D.A.V. College of Education Abohar
IV.O. 6	CAUSES OF DISSATISFACTION AMONG TEACHERS (July 1964 to April 1965, published)	*G.S. Thakur* Govt. College of Education Bilaspur (M P)
IV.O. 6	AN ENQUIRY INTO THE DEEPER MOTIVATIONAL FACTORS OF PERSONS ENTERING THE TEACHING PROFESSION AT THE SECONDARY SCHOOL LEVEL (1971-1975, not published)	*B. Kenchaveeraiah* Viveakanada College of Education Arsikere-573103 (Karnataka)

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V.P LEVELS OF EDUCATION (370 00)

V.P. 1	SURVEY OF BEHAVIOUR DIFFICULTIES OF NURSERY SCHOOL CHILDREN IN UDAIPUR (August 1964 to March 1965, not published)	*N S. Gahlot* Govt Teachers Training College Ajmer
V.P. 2	A COMPARATIVE STUDY OF THE ADJUSTMENT-PATTERNS OF FIFTH GRADE CHILDREN IN PRIVATE AND CORPORATION SCHOOLS OF MARATHI AND GUJARATI MEDIA IN THE CITY OF BOMBAY (June 1973 to Sept 1974, published)	*A. W. Oak* P.V D T College of Education for Women, 1, Nathibai Thackersey Road Bombay-400020
V.P. 2	FIXATION OF THE NUMBER OF NOTEBOOKS AT ELEMENTARY SCHOOL LEVEL (July 1974 to April 1975, published)	*G S. Thakur* Govt. College of Education Bilaspur (M P)
V.P. 3	WASTAGE AND STAGNATION IN SECONDARY EDUCATION (July 1966 to April 1968, published)	*G.S. Thakur* Govt. College of Education Bilaspur (M P.)
V.P. 3	AUDIO-VISUAL AIDS IN SECONDARY SCHOOLS (Published)	*P V. Apte* P V D.T. College of Education for Women, S N.D.T. University Bombay-20
V P. 3	TO STUDY THE OUTLOOK TOWARDS WORK EXPERIENCE OF 200 MARATHI STUDENTS OF SEC. SCHOOLS OF DADAR-MAHIM AREA (Nov. 1976 to March 1977, published)	*Prema Baburao Tirodkar* 4, Suryakiran (Gorge Nagar) Andheri East Bombay-59
V.P. 3	A SURVEY OF 'EXTRA-READING' OF THE X STANDARD STUDENTS IN MARATHI MEDIUM SECONDARY SCHOOLS IN GREATER BOMBAY (January 1972 to Dec. 1972, published)	*P.V. Apte* P V.D.T. College of Education for Women S.N D T. University Bombay-20
V.P. 3	NATURE OF WORKLOAD OF THE TEACHERS IN SECONDARY SCHOOLS IN GREATER BOMBAY (Feb. 1973 to Nov. 1973, published)	*P.V. Apte* P V.D.T. College of Education for Women S N.D.T. University Bombay-20
V P. 3	CONSENSUS AT TEACHERS REGARDING THE ALLOTMENT OF TEACHING WORK IN SECONDARY SCHOOLS (June 1971 to June 1972, published)	*A W. Oak* P V.D.T. College of Education for Women, Nathibai Thackersey Road Bombay-20

V.P. 5	STUDY OF THE GUIDANCE NEEDS OF THE GRADUATE AND THE GRADUATING STUDENTS OF ARTS AND HOME SCIENCE COLLEGES IN BOMBAY OF S.N D.T WOMEN'S UNIVERSITY (November 1973 to June 1976)	*B.C. Shah & Rajani R. Askar* P V D T College of Education for Women, 1 N. Thackersey Road Bombay-20

V Q SCHOOL SYSTEM (371.00)

V.Q 1	SHIFT SYSTEM FOR SCHOOLS (July 1975 to April 1976, published)	*G S Thakur* Govt. College of Education Bilaspur (M P.)
V.Q. 1	A CRITICAL ANALYSIS OF THE SCHOOL AND COMMUNITY WITH SPECIAL REFERENCE TO RURAL HIGH SCHOOLS (October 1970 to May 1972, not published)	*G.N. Lingappa* M M College of Education Davangere-577002 (Karnatak)

V R SCHOOL ADMINISTRATION (371 2)

V.R. 7	AN INVESTIGATION INTO THE MID-DAY MEALS SCHEME IN SOME OF THE SCHOOLS IN MADURAI DISTRICT AND ITS EFFECTS AND ATTENDANCE AND PROGRESS OF THE CHILDREN (June 1975 to May 1976, not published)	*Rajapurshpam* St. Ignatius Training College, Palayamkottai
V.R. 7	REACTION OF EDUCATIONISTS, TEACHERS AND PARENTS TOWARDS THE NEW SCHEME OF TWELVE YEARS OF SCHOOLING (August 1976 to June 1977)	*Adarsh Sharma* Guru Nanak College of Education Kapurthala
V.R. 9	WORKING OF THE A.D I.S (July 1971 to April 1972, published)	*G.S. Thakur* Govt College of Education, Bilaspur (M P)
V R 9	A CRITICAL STUDY OF SEC. SCHOOL INSPECTION IN MYSORE STATE (1968 to 1970, published)	*G. Shivarudrappa & G M. Patted* Deptt of P.G. Studies in Education Karnataka University Dharwar

V S. EDUCATIONAL FINANCE (379 12)

V.S. 1	A CRITICAL STUDY OF TEN SCHOOLS IN AKOLA TOWN IN RESPECT OF EXPENDITURE AND TERM FEE ADMISSIBLE TO SCHOOLS ACCORDING TO GRANT IN AID CODE (July 1975 to May 1976, not published)	*I. Chitnavis & S.B. Balerao* Govt College of Education Akola

V.S. 1	A Survey of Activity Fund At Middle School Level (July 1975 to April 1972, published)	*G.S. Thakur* Govt. College of Education Bilaspur (M.P.)

V T, EDUCATIONAL FACILITIES (371.6)

V.T. 1	A Critical Study of the Library Facilities Available and the Measures Adopted to Cultivate Extensive Reading with Regard to English in Standards IX and X in Selected Schools at Tirunelveli and Palayamkottai (June 1971 to May 1972, published)	*Veronica Jeyaray* St Ignatius' Trg College Palayam Kottai
V.T 2	Scrutiny of Ist English Textbooks Published in Different States of India with a view to Find out some Useful Features for Maharashtra Textbook (February 1975 to October 1976, not published)	*P.A. Raut* Govt. College of Education Ambajogai, Distt-Bhir (Maharashtra)

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Education for Our People

In the past one year or so, several important measures have been taken by the Government of India in the field of education. The I. J. Patel Committee was appointed to look into the Ten-Year School Syllabus prepared by the NCERT. The other committee asked to offer comments and recommendations on the +2 scheme was headed by Dr. Malcolm Adisheshiah. Both these committees made important recommendations and suggested ways and means for reducing the work-load on children besides making 10+2 a functional scheme

The late Dr. Sriman Narayan organized a seminar in 1977 in which the Prime Minister broadly hinted at an alternative strategy and educational structure called 8+2+2 in place of 10+2. The Prime Minister spoke at length on the merits of regarding 8 as one compact unit called elementary education and +4 as higher secondary. There is much to say in favour of either but in a country like ours, with an elitist educational system, 8+4 looks more suitable than 10+2. Both these patterns are more than the arithmetic they propose to show. It would be a little too much to say that one is more likely to succeed than the other. Reasons for their success or failure are not very far to seek. The knowledgeable guardians or parents interpret and mould systems of education to suit their need and where the Government fails to measure up to their expectation, they obtain it from the teaching shops ready to oblige any taste. Indeed, it would perhaps be in the fitness of things to say that the elite and the *kulaks* set their own educational standards and extract what they consider as 'useful' out of a system which in no case can survive without support from the vocal sections of the society. Much to the universal regret, governments yield to this kind of pressure. We must not forget that the demands of a section of our society are running counter to the common weal. Hence, controversies and apathy—at times, the two being two sides of the same thing, i.e. dislike and disapproval of a palliative offered by the government in right earnest. The future would unfold the success or failure of any recommended structure whether now or ever.

A recent addition to the cures being displayed on the windowship of education is the report, 'Education for Our People—A Policy Frame for the Development of Education (1978-87)' with a foreword by Sri Jayaprakash Narayan. This report would eventually be named after its chairman Justice V.M. Tarkunde But as one goes into the report it looks more like a rehash of the Education Commission's (1964-66) recommendations. Perhaps the reason for this all-too-familiar lingo lies in the fact that both had Sri J. P. Naik as their Member-Secretary. Sri Naik has not been able to live down the Commission's recommendations and the Resolution on Education adopted by the Government of India in 1968. In fact, except for Sri Narayan's foreword there is no significant departure from the Commission's recommendations. The other mildly surprising part of the 77-page report are the defences Sri Naik and others have sought to advance in favour of the past failures (pp. 67-70). Be that as it may, the report makes interesting reading and all historians of education must keep copies of this report for future use. However, the report has best been summarized by Sri Jayaprakash in his foreword as a seven-point programme suggested to improve the ailing system. Indeed that alone is down-to-earth approach, basides the remedies which fly already thick in the air, as it were.

Education as a process needs a fillip from all quarters—voluntary and government The system must flourish equally vigorously both in its formal and non-formal forms. All sections of society must get their education, be they children or adults. The flow of education must be equal both for the poor and the rich This then is the ideal. We Indians cannot settle for anything less. □

The Challenge of Universal Primary Education

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THERE can be no two opinions that for an effective functioning of Indian democracy and for the progress of the country, eradication of illiteracy and universalization of primary education for the age-group 6 to 14 should receive the highest priority in social reconstruction These problems had drawn the attention of the founding fathers of the Indian constitution The hopes expressed by them for universalization of primary education and eradication of illiteracy still remains unfulfilled even after 30 years of independence. No doubt, some progress has been made in this direction but quite a substantial chunk of the age-group 6-14 is still outside the school

The government at the Centre and in the States have made some efforts in this direction. The rise in the number of schools has been phenomenal According to the Third All India Educational Survey[1] , the primary school is now available to more than 95 per cent of the rural population within a distance of 1 km. and 97 per cent within a distance of 1 5 km. Of course, provision of facilities is not synonymous with their utilization.

Various studies have been conducted from time to time to diagnose the malady and offer remedial measures. Almost all of them have identified causes in two major dimensions . (*i*) causes related to psycho-socio-economic factors, and (*ii*) causes related to inherent deficiencies in the system and its management. The predominant ones are :

1. Parental indifference to education.
2. Involvement of children in family work.

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[1] Unpublished statistics of the Third All India Educational Survey, conducted by NCERT, New Delhi, 1977.

3. Lack of motivation on the part of teachers.
4. Poor attracting and holding power of institutions.
5. Paucity of resources.

Many experiments and action programmes have been carried out by the Union Ministry of Education, State Education Departments and voluntary organizations to solve these knotty problems and there have been substantial notable gains on a limited scale. Still much remains to be done Except in a few states, universalization of primary education is reported to have reached almost 100 per cent.

PROBLEMS

There are two facets to the problem of universalization of primary education :

1. Bringing all children of age-group 6-14 to school.
2. Retaining all enrolled children in school and eliminating stagnation.

1. *Bringing All Children of Age-group 6-14 to School*

This issue may be considered in two parts , (*a*) Age-group 6-11, and (*b*) Age-group 11-14. Table 1 shows the estimated child population in age-group 6-11 and children in school of this age-group as reported in the Third Survey.

Table 1

AGE-GROUP 6-11 (Figures in crores)

	Rural	*Urban*	*Total*
Estimated Population	6.05	1.58	7.63
Children In Schools	3.83	1.22	5.05
Percentage	63.3	76 6	66 8

Table 1 shows that about 34 per cent of the children in the age-group 6-11 are still outside the school This number will be much larger if the drop-outs and those not attending but enrolled are also added. In rural areas about 37 per cent are not in schools, while in urban areas this percentage is 23.

Treating the ratio of male to female population as 10 : 9.5 the sex-wise distribution of children in the age-group 6-11 as against the sex-wise number of children in schools is shown in Table 2.

The sex-wise break-up in Table 2 clearly shows that the percentage of girls' education is less than 50 in rural areas in this age-group. The overall position of girls' education is also far from satisfactory.

Table 2

AGE-GROUP 6-11 (Figures in crores)

	Rural		*Urban*		*Total*	
	Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
Estimated Population	3.10	2.95	.81	77	3.91	3.72
Children in Schools	2.46	1.37	69	.53	3.15	1.90
Percentage	79.4	46.5	85.2	68.8	80.6	51.7

Table 3

AGE-GROUP 11-14 (Figures in crores)

	Rural	*Urban*	*Total*
Estimated Population	3.31	90	4.21
Chilren in Schools	1.04	.55	1.59
Percentage	31.1	61.5	37.5

Table 3 indicates that a substantial chunk of the age-group 11-14 is not taking the advantage of education. Some of these might have received education earlier. Table 4 shows the sex-wise breakup.

Table 4

AGE-GROUP 11-14 (Figures in crores)

	Rural		*Urban*		*Total*	
	Boys	*Girls*	*Boys*	*Girls*	*Boys*	*Girls*
Estimated Population	1.70	1.61	.46	.43	2.67	1.54
Children in Schools	73	31	.33	.22	1.06	.53
Percentage	42.4	19.3	71.7	51.2	39.7	34.4

The percentage of girls from the rural areas is the lowest These children have either not been to school at all or have discontinued their education.

As found in the Third Survey statistics the states which contribute mostly towards this phenomenon of low percentage of girls' education and to low percentage of enrolment in the age-group 6-14 are Andhra Pradesh, Bihar, Jammu & Kashmir, Haryana, Madhya Pradesh, Rajasthan, Orissa, Sikkim and Uttar Pradesh. The situation in respect of the weaker sections of the society, specially scheduled castes and scheduled tribes, is still worse.

The above data are based on the reference date of 31 December 1973 as adopted in the Third Survey. During the intervening period the population has increased and so must have increased the enrolment. But the percentage of children outside the school must still be substantial.

2. *Retaining All Enrolled Children in School*

The wastage and stagnation rate at the primary and middle stages is reported to be more than 70 per cent which in itself poses a serious problem There are about 40 per cent single-teacher schools in the country. They are mostly in rural areas. The holding power of these schools is even poorer than that of schools in general. This contributes significantly to the drop-out rate at the primary stage. Lack of proper supervision, inadequate facilities, poor or no buildings are other contributory factors. Unrealistic curriculum, out-dated methods and mechanistic evaluation practices are also responsible for not attracting students and failing to hold those who enter the school.

Teachers

There are 25,88,785 teachers at the school stage. The distribution of male and female teachers over different stages is given in Table 5.

Table 5

TEACHERS (Figures in lakhs)*

Stages	*Rural*		*Urban*		*Total*		*Grand Total*
	Male	*Female*	*Male*	*Female*	*Male*	*Female*	*Combined*
Primary	9 64	2.88	1.39	1.89	11.03	3 97	15.00
Middle	3 42	.63	95	.82	4 37	1.45	5.82
Secondary	1 93	.25	1.10	57	3 03	82	3 85
Hr Sec.	.46	03	51	.24	97	27	1.24
Total	15 45	2.99	3.95	3 52	19 40	6 51	25 91

*Based on the Third Educational Survey

It is evident from Table 5 that the number of female teachers is almost one-fifth of the male teachers in rural areas though these figures in urban areas compare very well. This is obstacle in the propagation of universal primary education of girls particularly in the age-group 11 to 14 and adult illiteracy among women in rural areas.

Pupil-Teacher Ratio

The sex-wise and stage-wise pupil-teacher ratios are given in Table 6.

Table 6

PUPIL-TEACHER RATIOS

	Rural			*Urban*			*Total*		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Boys*	*Girls*	*Total*
Primary	1 31	1,74	1·39	1,34	1 32	1.41	1·38	1.56	1 38
Middle	1·19	1 58	1·22	1,37	1,29	1.30	1 25	1 46	1:25
Secondary	1:15	1·32	1.17	1·20	1 20	1 20	1 17	1·25	1 18
Higher Secondary	1 11	1 33	1,13	1·18	1.17	1 17	1.14	1.18	1·15

Table 6 indicates that at the primary stage there is an acute shortage of women teachers in rural areas. The condition in urban areas is favourable to lady teachers. The higher one goes the more favourable is the pupil-teacher ratio. As a matter of fact, in view of the tender age of the pupils at the primary stage, these children need greater individual attention.

Corrective Measures Incentives

During the last thirty years a number of programmes were implemented to universalize primary education and to increase enrolment. Some of these are listed below.

1 Enforcement of Compulsory Education Acts.
2. Appointment of attendance officers.
3. Opening of more schools.
4. Provision of free textbooks, stationary, etc.
5 Provisions of mid-day meals.
6. Scholarships for regular attendence.
7. Provision of maintenance grants and subsidies.
8. Provision of free boarding facilities.
9. Provision of free lodging facilities.
10, Provision of free transport.
11. Provision of part-time schooling facilities.
12. Provision of separate schools for girls.
13. Appointment of lady teachers
14. Provision of staff quarters for lady teachers.
15. Appointment of *Ayas* (school mothers) to escort girls.
16. Curriculum renewal to make it more relevant to local needs.
17. Examination reform.
18. Upgrading teacher competencies
19. School improvement programme.

20 Flexible school time-table.
21. Using mass-media like radio and television for broadcasting lessons and for teacher-orientation and attitudinal change.
22. Ungrading school system.
23. Appointment of additional supervisory staff.
24. Involvement of village communities
25. Setting-up of schools complexes.
26. Establishment of book banks.
27 Attaching pre-primary classes to primary schools.
28. Improving teaching methods.
29. Developing instructional materials for better learning among pupils.
30 Improving pre-service and in-service teacher education programmes.
31. Encouraging co-curricular activities, games and sports.
32. Introduction of programmes of non-formal education.

Naik[1] has outlined a programme of action As a background to this, he says :

> We might begin the discussion with the adoption of Article 45 of the constitution framers had before then an official plan, 'Post-war Educational Development in India' (1944), which accepted the basic education scheme of Mahatama Gandhi put it in the traditional model of the elementary education system, and suggested that the programme of universal education in the age-group 6-14 should be implemented in a period of 40 years (1944-84) at an estimated cost of Rs. 200 crores a year (out of a total estimated expenditure of Rs. 300 crores on the education as a whole or about Rs. 7 per head of population at 1973 prices). On the other hand, the constitution framers also had before them the alternative models proposed by Late Shri Gokhale and Shri Parulekar. The whole matter was examined by an expert committee under the chairmanship of late Shri B.G. Kher which recommended that universal education in the age-group 6-14 should be provided by 1960. The final decision made on the recommendations of this committee was embodied in Article 45 of the Constitution.

As things stand today almost half the population of the age-group 6-14 is still not attending the school There has been something wrong somewhere. One obvious reason has been the paucity of resources. The expenditure on education has not exceeded beyond 3 per cent of the national income.

> The Indian Education Commission (1964-66) made several recommendations which would have cut down the costs to the minimum Even then, it was found that very large investments would still be needed if universal elementary education was to be provided for all children. Its basic assumption in this context was that over the twenty years between 1966 and 1986 the national income per head would be doubled (this assumed an annual growth rate of 6 per cent in the GNP), that the proportion of national income spent on education would also be doubled from about 3 per cent in 1966 to 6 per cent in 1986, and that one-third of the total education expenditure would be allocated to ele-

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[1] Naik, J P., *Elementary Education in India A Promise to Keep*, Allied Publishers, Bombay, 1975, p. 14.

mentary education.[2]

It is well known that these recommendations have not yet been implemented. As indicated by the Third All India Educational Survey, as many as 2.68 crores of children in the age-group 6-11 and 1.82 crores of children in the age-group 11-14 are still to be brought into the system.

There is no alternative to good education. Most of the ailments of our present day education even at the higher level have their roots in the poor education at the primary stage. In order to influence this sector of education for qualitative improvement much more resources will be needed. The present poor quality is mostly due to poor quality of teachers, inadequate facilities and lack of community interest in education. Funds are needed to improve the quality of the teacher and integrated programmes of rural development are necessary to ensure involvement of the community.

This brings us to the other major hurdle in the universalization of primary education, viz. apathy to education among the masses. Literate parents usually feel interested, in spite of pecuniary hardships, in getting their offspring educated while very few of the illiterate ones attach any value to education. In case of illiterate masses apathy to education is tied up with poverty. They do not have adequate clothes to put on, a house to live in, enough food to eat and no money whatsoever to spend on entertainment of any sort. They spend their days and nights in eking out a meagre living. Their wards, even if taken to school, tend to drop out because, on the one hand their parents do not appreciate the value of education and on the other, these children do not have proper clothes to put on, food to eat and money to purchase books and other educational materials. Added to these are the lifeless curriculum and disinterested teachers. Schemes to provide some incentives have only been able to touch the fringe of this colossal problem which is directly linked with economic condition. It is, therefore, necessary to view it in the wider prespective of economic development Strategies for integrated rural development will have to be evolved in order to realize the objective of universal primary education.

In addition to poverty, another important factor, in case of girls, responsible for low rate of literacy and poor enrolment is systematic discrimination practised by the menfolk against girls and women. Purdah, segregation and a somewhat negative slant towards education of girls and women among the women-folk themselves, let alone the men-folk, are very potent reasons for the above sorry state of affairs in respect of girls' education Systematic social propaganda and considerable investment in girls' education programmes shall have to be made to deal with this unfortunate situation

Mass media can be very effectively utilized for the programmes of (*i*) universalization of primary education, and (*ii*) creation of favourable climate for primary education. It is hoped that India will be able to cover a substantial section of its rural population through a network of television during the next five years. This can prove a powerful medium for the above programmes at a relatively lower cost. Involvement of voluntary organizations including teacher federations is another powerful medium to create a favourable climate and also to execute the programmes.

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[2] ibid., p. 41.

According to Naik,

> If elementary education is to be made universal, the traditional model of the elementary education system should be radically modified on the following lines to make due provision for the education of the children of masses :
>
> 1. The single-point entry system must be replaced by a multiple-point entry system under which it will be open for older children of 9, 11, or 14 to join the schools in separate classes specially organized for their needs.
> 2. The sequential character of the system must go; and it should be possible for older children to join the prescribed courses at any time and also to complete them in a much shorter period.
> 3. The exclusive emphasis on full-time institutional instruction should be replaced by a large programme of part-time education which should be arranged to suit the convenience of children who are required to work.
> 4. The exclusive emphasis on the utilization of full-time professional teachers should go. An attempt should be made to utilize all the teaching resources available in the local community, and the services of part-time teachers and even of senior students should be fully utilized for promoting instruction in the primary schools.
> 5. There should be no rigid demarcation between primary schools and preschools. Girls who are required to look after young children should be encouraged to bring these children to the school. These could be taken care of in preschools or creches attached to primary schools which should be managed by the girls themselves, by turns, under the guidance of teachers. These will provide a valuable service at the minimal additional cost and assist materially in the spread of education among girls from the poorer families [3]

The above suggestions are probably based on the assumptions that but for the unsuitability and rigidity of the system, on the one hand, and the involvement of girls in looking after younger children in home, on the other. Parents are, by and large, quite conscious of the utility of education and the existing formal system has reached its limits and cannot take in any more on a regular basis.

Keeping the realities of the rural scene in view, the following action points are considered necessary for attacking the twin problems of universalization of primary education and mass illiteracy :

1. Achievement of universal primary education and eradication of illiteracy must be built into a programme of integrated rural development in collaboration with the Ministries of Health, Agriculture and Industry.
2. Special programmes for girls' education and eradication of female illiteracy must be undertaken on a priority basis.
3. Integrated programmes of formal and non-formal education my be

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[3] ibid., pp 51-52.

developed to bring in the fold of education all those children who are outside the existing educational scene and adults who are below 50 Simultaneous revamping of educational administration would also be necessary.

4. Piecemeal efforts being done by various departments and suggestions in the fields of formal and non-formal education may be brought under one umbrella so as to make possible better collabortion and coordination.
5. An experiment in integrated rural development based on micro-planning and involvement of local communities at all the stages of development may be undertaken immediately to develop a model for replication. If any such experiment has already been conducted anywhere in this country, its results could be extremely helpful in developing an action programme for universalization of primary education and eradication of illiteracy Manipulation of one or two variables at a time ignoring all the deterrant ones is not likely to lead the country towards the achievement of the above goals. A realistic time-bound programme based on local needs and potentialities for each area has to be developed and implemented.
6 Any programme of development which is undertaken has to be supported till local leadership is developed to take care of the community with minimal governmental aid. ☐

Non-formal Education : An Alternative to Universalization of Elementary Education

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THE establishment of part-time, short-duration classes for children who cannot attend school during regular hours is being advocated as an alternative method of realizing the constitutional objective of providing free, complusory and universal education up to the age of 14. The Interim Report of the Working Group on Universalization of Elementary Education, which has recently been brought out by the Ministry of Education and Social Welfare has, for instance, recommended that out of 320 lakh children who will be additionally enrolled in Classes I-VIII during the 1978-83 Plan, 160 lakh should receive education in non-formal education centres.

The argument is that a sizeable proportion of the children, falling within the age-group 6-14, suffers from various social and economic handicaps which prevent them from enrolling in educational institutions that have already come into existence or that may be established in the near future. There is another category of children for whom education through such non-formal education centres/classes is being advocated the children who drop out of elementary schools because they have to assist the families in the augmentation of their meagre resources. They do this directly by participating in the family's economic activity and/or indirectly by looking after various demestic chores, relieving thereby their parents for economically gainful activity.

While the basic formulation, particularly in respect of non-attendance and premature withdrawal, is sound, the proposal is faulty in many of its assumptions and quite nebulous in operational details It is tacitly assumed that once non-formal

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* The views expressed are the personal views of the author and do not represent Planning Commission's views

education centres/classes are established, non-attending children and those who drop out will flow to them in ever-increasing numbers. Whether the timing, when the educational institutions function, is the only deterring factor, has, not been empirically investigated It is necessary to do so, particularly in view of the latitude that has been given in almost all states to adjust school timings in relation to the socio-economic conditions of the locality.

The present paper attempts to evaluate critically some of the assumptions underlying the establishment of non-formal education centres for non-attending children and/or the school dropouts ; it also indicates some of the areas where intensive work requires to be done.

Schoolless Habitations

The assumption that all the non-attending children do no attend schools because they cannot afford to join the already established institutions is not correct. Quite a large number of rural habitations are still without schools. The Report of the Third All India Educational Survey, conducted by the NCERT shows that quite a substantial number of habitations are without facilities for primary and middle school education, either within them or within a reasonable walking distance of the children. For the country as a whole, the Survey indicated that 1.83 lakh habitations out of 9 54 lakh habitations had no primary school/section either in the habitation or within a distance of 1 5 km. As for middle school education, 3.89 lakh habitations had no facility in the habitation or within a distance of 5 km.

The states show considerable variation in respect of the availability of facilities for primary and middle school education. The following data for a few states are illustrative

Table 1

PROPORTION OF HABITATIONS WITH PRIMARY AND MIDDLE SCHOOL FACILITIES

S No	*State*	*Proportion of Habitations with*	
		Primary schools in them or within 1.5 km	*Middle schools in them or within 5 km.*
1	Andhra Pradesh	80	67
2	Assam	92	87
3	Bihar	89	88
4	Gujarat	85	*
5	Haryana	96	85
6.	Himachal Pradesh	52	70
7	Jammu & Kashmir	72	81
8	Kerala	84	94
9	Madhya Pradesh	72	62
10.	Maharashtra	87	85
11	Orissa	79	68
12	Punjab	96	91
13	Rajasthan	72	66
14	Tamil Nadu	91	88
15.	Uttar Pradesh	78	84
16.	West Bengal	91	83

*There were no middle schools in Gujarat.

The walking distances of 1.5 km., and 5 km. indicated in the Draft Fifth Five Year Plan, are quite arbitrary. In states like Jammu & Kashmir, Himachal Pradesh, Madhya Pradesh and Rajasthan, and the hill districts of Uttar Pradesh, these distances would be too unreasonable to expect children to walk. As the Table 1 shows, a sizeable proportion of habitations in educationally backward states like Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh is still without facilities for primary and middle school education. For instance, the percentage of rural habitations without primary schools/sections in them or within 1.5 km varies from 4 in Punjab to 48 in Himachal Pradesh. In the case of middle schools/sections, the variation ranges from 9 per cent in Punjab to 38 per cent in Madhya Pradesh. In the light of the above data, it is not unreasonable to assume that the absence of educational facilities within the habitation or at a reasonable walking distance, prevents many a children from enrolling in schools. This will be particularly true of girls who account for a major portion of the non-attending children.

The major reason for lack of educational facilities in some habitations is, no doubt, the sparseness of their population While it is true that in many cases the population is too small to make the establishment of an institution economically viable or even educationally effective, a substantial proportion of the habitations without schooling facilities have enough children of school-going ages for the establishment of single or two-teacher schools. Table 2, which has been computed from the data made available in State Reports of the Third All India Educational Survey, shows habitations without schooling facilities.

Table 2

HABITATIONS WITHOUT SCHOOLING FACILITIES BY SIZE OF POPULATION

S. No	*State*	*Habitations not having primary and middle schools/sections in the habitation or within a walking distance of 1 5 km /5 km*	
		With population of 300 and above	*With population of 500 and above*
		(In percentages)	
1.	Andhra Pradesh	18	28
2.	Assam	23	19
3	Bihar	18	20
4.	Gujarat	33	—
5.	Haryana	30	54
6	Himachal Pradesh	3	1
7.	Jammu & Kashmir	10	4
8	Madhya Pradesh	14	9
9	Maharashtra	8	20
10	Orissa	5	8
11.	Punjab	10	36
12.	Rajasthan	35	29
13.	Tamil Nadu	—	35
14	Uttar Pradesh	23	17
15	West Bengal	10	32

It will be seen from Table 2 that between 3 to 35 per cent of the habitations with an average population of 300 or more do not have primary schools either within them or within a walking distance of 1.5 km. As for middle schools, the percentage of habitations without schooling facilities either in them or within a walking distance of 5 km. varies from 1 in Himachal Pradesh to 54 in Haiyana The above population sizes, namely 300 and 500, have been assumed because on the existing proportions of age-group population, they are expected to ensure an average enrolment of at least 40 children, allowing thereby the establishment of a single-teacher school As pointed out earlier the walking distance of 1.5 km. and 5 km. have quite arbitrarily been fixed. It is only the other people's children that educational planners and administrators expect to walk such distances to reach an educational institution. An important point that is revealed in Table 2 is that the educational backwardness of some of the states could well be due to their inability to provide schools within an easy reach of children.

Although collegiate institutions and secondary schools of lower enrolments continue to proliferate, the criterion of economic viability is being more strictly applied to the establishment of primary and middle schools. The pupil-teacher ratios, rather than equalization of educational opportunity and educational efficiency, have governed the appointment of teachers in elementary schools. The nature of problems faced by teachers in single-teacher schools—often established in many sparsely populated areas and sometimes even in places where more than 40 children are available—should also be a valid point for consideration in making educational provisions and not merely the number of children that are available After all, numbers may not indicate the true work-load of a teacher. It must be recognized that for the organization of non-formal education centres/classes these schoolless habitations will also require the appointment of teachers. unless it is felt that, because the economically viable complement of students will not be available in them, even non-formal educational facilites need not be provided there!

The Problem of Drop-outs: Economic Considerations

The establishment of non-formal education centres/classes is also justified in the context of the large drop-outs. The argument advanced is that, since these students have to assist in augmenting the income of the households, they cannot attend schools when they normally function. Non-formal education classes, which can be organized after the children are free from their economic and domestic chores—generally in the evening when the day's work is done—can cater to their educational needs. It is true that poor children cannot afford to give up their domestic chores for the luxury of education. However, the proportions of dropouts that are frequently quoted to support the establishment of non-formal education centres, viz 60 per cent leaving before reaching Class V and 75 per cent leaving before reaching Class VIII, need a little more close examination. The analysis of figures, published by the Ministry of Education and Social Welfare, indicates that bulk of the dropout takes place between Classes I and III when the child is too young to be of any great economic use to the household; for instance, out of 164 lakh children who were enrolled in Class I in 1962-63, only

57 lakh reached Class V in 1966-67 and only 36 lakh reached Class VIII in 1969-70. Thus, between Classes I and V, 107 lakh children (65 per cent) had apparently dropped out By the time the cohort reached Class VIII the number had been reduced by 128 lakh (78 per cent). That bulk of the dropout takes place when the child is just beginning his schooling is indicated by the fact that 83 lakh or 77 per cent of the total dropout between Classes I and V and 65 per cent of that between Classes I and VIII, took place between Classes I and III. The apparentness of the dropout has been advisedly used. Since enrolment in Class I usually gets inflated because of the repeaters from the previous year, the dropout in the subsequent year appears to be larger than it actually is

The point that is being emphasized is that children do not drop out only because of economic necessity. Educational reasons are also important The existence of a large number of single-teacher schools, inadequately trained teachers, dull and ill-equipped schools and irrelevant curriculum are unable to help the smooth transition of children from the informal atmosphere of the home to the formal atmosphere of the school. The present content and methods of education are sufficient reasons to prevent many to enrol, and when enrolled, to continue. That, in spite of these, some children stick to schools is more surprising than that large numbers of them drop out.

The course of action seems quite obvious; while educational institutions can do fairly little to prevent dropout that takes place because of economic reasons, they can at least prevent those children from dropping out who do so because the schools are indifferent and irrelevant to their needs To the extent a dent can be made on the dropout that takes place on account of educational reasons, the number of non-formal education centres and expenditure on them can be reduced It appears to be a poor strategy to allow children first to drop out and then catch them in another kind of an alternative institution. And, what is the guarantee that non-formal education centres will be more attractive and efficient to prevent students deserting them?

Economic handicaps operate in a number of ways. More directly, they lead to child labour, paid or unpaid. It is not uncommon to see children of school-going age cleaning cups in road-side tea stalls or working as shoe-shine boys In a disguised form, they lead to non-attendance because they do not have proper clothing or textbooks and stationery; considering the insistence on uniforms in our schools and on formal teaching through textbooks (they are ever increasing in number and size), lack of these can be a major deterring factor. These disguised forms of poverty can be manipulated through the provision of such incentives as free books, slates and stationery, free uniforms and mid-day meals. These incentives formed an important part of the educational portion of the National Programme of Minimum Needs of the Fifth Five Year Plan. Their coverage was, however, too limited to allow any meaningful dent on the problems of non-attendance and dropout.

Equivalence of Courses

The problem of equivalence of education received in a non-formal education centre with that received in a formal educational institution has yet to be resolved. The resolution of this issue becomes particularly important because of the adoption of condensed courses in the non-formal education centres which are claimed to deal with essentials and provide five years' primary education in two to three years No empirical evidence exists to indicate how students, completing these condensed courses, are faring in the formal system although it is stated that, because of their mature age, students of the non-formal education centre take less time to learn. It seems necessary to accumulate empirical evidence which can demonstrate that education in non-formal education centres does not prove to be a serious handicap in the students' future educational performance. Without conclusive evidence to this effect, education received in the non-formal education centre may handicap the student's further educational advancement. It must be recognized that no amount of educational enrichment at a later stage can completely remove the educational deficiency of the preceding years.

The danger that two parallel systems of education—one patronized by the well-to-do and the other for the economically weak and socially handicapped—will be created, is real. Unless, education provided in the two systems is similar, non-formal education programme may be regarded, as happened with basic education, as an inferior form of education designed by the city-bread and privileged classes to keep the under-privileged and the rural folk in perpetual ignorance and poverty. The need for having similarity in educational offerings is also important from another point of view. Being a major means of enabling a person without any other resources to compete for opportunities for economic and social advancement, education which is inferior is likely to keep its recipient in a handicapped position. Students undergoing an inferior form of education in the non-formal education centres will find it increasingly difficult to compete on equal terms for opportunities available in the society for higher education With poor performance at this level they may again drop out of the education system, thereby nullifying the attempts to catch, in the educational net, the drop-outs.

Restructuring the Curricula

The dissimilarity between the formal and the non-formal systems of education should only be in terms of the timing at which education is provided and not in the content of education. Even in methodology there should be a broad similarity; for example, as suggested under the system of basic education, content of school education—formal or non-formal—should be woven round the child's and community's social or economic interests and not, as hitherto, be determined by the requirements of collegiate education. It may be useful to so redesign the curricula of elementary and secondary schools that education provided meets the needs of those who leave school rather than those who continue in education.

Students attending non-formal education centres are generally a heterogenous group of varying ages and varying educational backgrounds. If at all there is any similarity in them, it is that they belong to the large neglected group of underprivileged sections of the population—the scheduled castes, the slum-dwellers, the sons and daughters of farm workers, etc. That each member should earn and supplement the family's meagre resources is a perpetual necessity for these sections. Non-formal education centres, which have come into existence in some areas as experimental programmes, therefore, generally aim at combining education with work-experience; in many cases the latter helps the students to earn while learning. While this is a right approach to education and should be universally applicable, the programme of work-experience is yet to be worked out in all its implications even for the formal system For instance, a visit by the author, to an innovative non-formal education centre, revealed that most of the work-experience related activities remain at an elementary level of skill training, and without progressive upgrading of this training the participants become bored and productive skills lose much of their educational value. With such low level training, the skills learnt are not likely to help a child to earn his living after completing his education at the centre. The training of children in skills, which become progressively difficult and complex, is an area where the education departments possess limited competence. They require the assistance of other development departments which have extension organizations. How their collaboration and assistance can become avilable to educational institutions, needs serious consideration. In order to ensure that such assistance becomes regular and permanent, suitable institutional arrangements should be established

Teacher Preparation

The training of teachers for non-formal education is yet to be taken up with any degree of seriousness. It must be recognized that for various reasons, the work of the teacher in a non-formal education class is qualitatively different from that of the teacher in the formal school. First, the situation in the non-formal education centre is unstructured. Secondly, the group taught is heterogenous, belonging to different age-groups and possessing varying educational backgrounds. Thirdly, motivating children for learning, after an exhausting day of labour, is more difficult. Fourthly, the teacher of these centres is also expected to promote learning through productive work and must be himself proficient in productive skills.

Unless, therefore, teachers are adequately prepared and trained for these and other tasks, non-formal education programme is likely to have little success. The existing training institutions have little experience of training teachers for non-formal education. The experience of non-formal education centres, which have been functioning as experimental projects in a number of areas, requires to be pooled to work out a comprehensive programme of teacher-training.

Financial Considerations

The economics of non-formal education is yet another area where thinking is not very clear or concrete While the tasks performed by a teacher of the non-formal education centre are both difficult and qualitatively different, he is expected to work on a very low honorarium. Low remuneration for the teacher is advocated because the payment of a higher salary to a teacher of non-formal education centre will increase the cost of educating a child in view of the fact that, because of the rather smaller number of children in a non-formal education class, the pupil-teacher ratio may be considerably more favourable than 40 : 1 which is generally expected to be the financially optimal ratio at the primary stage. That the teacher's task in the non-formal education centre is difficult and different as has been indicated above. What he should be paid ought to be determined by his work-load and not the number of pupils that he teaches. Further, non-formal education centre is expected to be an alternative channel for universalization of elementary education. While every effort should be made to reduce costs it should not necessarily be a cheaper alternative. After all, since its protoganists argue that, no matter what is done, the hard core of non-attending children can be reached by no other means, the non-formal education system must be given a fair deal and the investments in it should at least be of the same order, if not more, as those of the formal system.

Concluding, there are a number of assumptions the validity of which is yet to be established. The danger is that over-enthusiasm for non-formal education and inexperience in organizing it meaningfully may lead to under-investments in the 'formal' system of elementary education, which, as everyone knows, has not received the resources that it should have in the light of the constitutional obligation and its importance for country's economic well-being. In a country of mass illiteracy where parental support to child's learning is minimal—at least in formal areas—non-formal education may lead to serious gaps in a child's knowledge. These deficiencies can prove a serious handicap in child's advancement in education and, consequently, in life. ☐

Excellence in School Education

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EDUCATION is a process to bring about desirable behavioural changes in the individuals as well as in the institutions. These changes should enable individuals solve their problems in more efficient manner than their forefathers. Who doesn't wish his/her children to be better off economically, sociologically and otherwise ? How can this be achieved if we evaluate the bases of education on the basis of yester years' standards ?

Curriculum Changes

The reader might have felt by now, the necessity of evolving the curriculum to cater to these requirements It is a difficult art, of course. The curriculum planners will have to consider the local needs, the national goals and the global situation before arriving at a consensus. The quantum of knowledge handed down to us for several centuries had been surpassed by what has been produced in the past fifty years by any crude standard. Hence, frequent changes in the curriculum is necessary. We cannot isolate ourselves from the mainstream of progress in the world.

Amongst the subjects criticized most, the prime place is occupied by the mathematics curriculum. The accumulated wisdom in the quantum of mathematics knowledge in the first few decades of this century brought together people of different approaches to the unique conclusion of revising the syllabus. Perhaps due to lack of knowledge of practical difficulties of the school learners, topics have been suggested. One of the drawbacks noticeable was non-inclusion of practising teachers at a particular level before revising the curriculum at that level. By consulting those teachers the psychological drawbacks could have been minimized. The moderation and adaptation based on the learners under the charge, expected of the teachers was not practised/practicable as it is not possible to expect that much discretion on the part of every practising teacher. Text-books prepared in a hurry added to the confusion instead of clarifying concepts Too many concepts, rigidity of algorithms reference to axioms at every stage were some of the drawbacks

The experience of the writer is worth considering. In the earlier stages, the writer taught old mathematics, after undergoing training voluntarily and officially sponsored taught new mathematics and is at present teaching a combination of both. In all, the writer has been keeping the objectives of teaching the subject (mathematics), in view and is able to report that the relative performance of pupils in public examinations, as well as classroom tests has been following the normal probability curve. Due to the atmosphere of discovery created in the class the bias has been towards the maximum marks as years pass by The teacher and the taught together learn certain ideas in the class and the response is encouraging.

Maturity of Today's Learners

One other factor, to be considered at this stage, is the maturity level of our pupils today. Thanks to the technological advancement around, each learner has to be always at one's wits end, and this naturally has prepared the learner to be educable. The remotest corners of the country's villages are also reached by the radio, television and other communications network. It is unwise to under-estimate the capacity of today's learners. Once they are provoked, they do reach very high standards. The several cases of indiscipline reported, are due to lack of proper sublimation of their surplus energies. It does require extra strain on the part of teachers besides a change expected in their attitude.

In this highly competitive world we do require capable leaders and intelligent citizens to blossom in our country. Besides, there are competitive examinations to get admissions to professional colleges, universities, jobs in public sector undertakings like banks and other such agencies. As long as the private agencies are allowed to educate children as they please perhaps affiliating schools to some foreign universities, these vacancies will be filled by pupils of such schools That means, by diluting the syllabi we are paving the way for creating second class citizens in the country. I am sure, that is not the intention of our leaders.

Adequate Programmes for the Gifted

As suggested earlier, for any syllabus based on the intellectual capacity, performance varies. If the quantum of the syllabus is indiscriminately reduced (it appears there is a competition to do so) the bright/gifted pupils will get stunted as they would finish the work for the majority quickly and indulge in indiscipline. While remedial measures may be undertaken to improve the weaker ones, we should not neglect probable dedicated future scientists by denying them the chance to acquire serious work habits in the early stages.

General

There is commitment on the part of today's pupils to cultivate regular study habits. Everyday working a few hours for preparation of that day's lesson as also that of next day will lesson the burden on the part of the pupils, parents and teachers alike. In fact parental cooperation is needed only in this field. The relative performance of pupils in other subjects is in no way better and hence the hue and cry that performance in mathematics is poor is meaningless. Methods of teaching should be modified to give practical bias inculcating self-correcting techniques. Teachers should enrol themselves as members of professional academic besides, like the All India Mathematics Teachers Association to discuss, decide and decipher norms to be realized in particular subjects and advise the authorities. In every school the teachers of a particular subject may meet and set norms of standard for that school. They need not feel apologetic in learning from each other and from news media, books and journals. Representatives attending conferences may bring messages for dissemination. Question banks, projects, teaching aids, exhibitions, etc. may be planned and executed in workshops organized on intra-school or inter-school basis.

Evaluation

The reforms suggested will be impossible without a radical change in the existing pattern of evaluation. Evaluation of the whole process of education of a learner is to be substituted in the place of the existing achievements tests. We seem to test what the pupil does not know rather than what the pupil knows. This position can be rectified by a trained, mobile panel of examiners of the practical examination type are appointed to meet the individuals personally, question them on the depth of their knowledge as they progress with their answers and then evaluate them. Group discussions and interviews may also be organized for personality studies. Attitudes, aptitudes, interest, study habits, heredity, environment and a host of other coordinates influence a child's achievement. While none of them is tested the effect of these achievements alone is tested in the existing system. This is highly discriminatory and unjustifiable. The possible objection about finance may be overruled by diverting the funds for the administration of the present system.

The teaching community should command respect by its own practice instead of demanding respect by precept. Hats off to those who are already of the type. Even today the student population do listen to the counsel of sincere dedicated teachers. Interference from politicians in campuses should be stopped forthwith and only when demanded law and order may be enforced as per rules. No concession need be given to law-breakers, whoseover they might be. We have lost heavily and suffered enough by playing safe and fanning the professional politicians. If the guilty are not punished, others get encouraged to become law-breakers for the sake of cheap popularity. Decisions arrived at after considerable deliberations need not be disturbed. Academicians may be given the national goals to be reached and afterwards their decisions should be final in the matter of curriculum. After that only administrative matters need be the say of the government If these are adhered to the country is sure to reach new heights in all fields as the progress of the country directly depends on the system of education in that country. ☐

Problems in Pre-School Education

Morbidity in Nursery Rhymes and their Alien Context

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TODAY, there are an estimated 50 million[1] pre-school children (3-5 years) in India. Of these, less than one per cent receive pre-primary education. In absolute terms, however, the present and prospective pre-school clientele is sizeable. In urban areas, new schools are mushrooming to meet the growing need for pre-school education. At such a juncture, the quality and content of pre-school education, and how far it is playing a purposeful role in the lives of so many young Indians, are issues that are being debated now and then in varied forums. I have addressed myself in this article to a specific aspect, viz. that of nursery rhymes and literature for young childran generally, and its relevance as well as meaningfulness to the young Indian child. In so far as the content of nursery instruction in India derives from the west (specifically the UK), I hope to interest the British reader and others from countries which have inherited the same legacy from the UK.

For some time now, both as a social scientist and as a mother of a two-and-a-half-year old, morbidity in children's literature—more particularly in nursery rhymes—has been troubling me. Hardly anyone will dispute the zeal with which every parent seeks to become the proud possessor and displayer of a storehouse of nursery rhymes—all locked up in the mind and embedded in the heart of the little pre-schooler. Go to any house with

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* The views expressed in the article are the author's own and do not reflect those of the agency.

[1] The source of data on pre-school children and percentage enrolled in pre-primary schools is *Handbook of Social Welfare Statistics*, Department of Social Welfare, Government of India, 1971.

young kids, and sooner or later, they will be asked to sprout the celebrate rhymes, echoing the familiar voices of our own distant childhood. Yet only recently, perhaps over a twelve-month period, I have become extremely sensitive to what it is that we get our children to recite, year after year. It is easy to discern that two things are grossly wrong about our nursery literature. First, it is highly morbid. And second, it is largely British in its origin and orientation. Thirty years after Independence, we are still shamelessly relying on imported nursery rhymes which are alien in context not only for the poor rural child and the slum-dwelling child in India, but also for the sophisticated product of the westernized urban elite.

The 'case' in both respects can be made on the basis of substantial incriminating 'evidence'. Take the morbidity angle. At least two-thirds of the nursery rhymes taught in our schools for pre-schoolers are morbid involving a shocking violation of the sensibility, innocence, and sensitivity associated with the young mind Of the seventy odd rhymes reproduced in Lady Bird Series[2] it is possible here to recall only a few for illustrative purposes

Thus, 'Rock a bye baby, on the tree top' ends up with both the cradle and the baby falling from the tree. 'Three blind mice' whose 'tails are cut off by the farmer's wife with a carving knife' present a shocking vision. They are disabled, being blind, and, therefore, in need of protection. Yet they get their tails mangled, and what is worse, their handicap (blindness) is cruelly flaunted in the concluding line, "Did ever you see such a thing in your life as three blind mice?" In 'Jack and Jill', the poor kid 'breaks his crown' and the vision of two little kids tumbling down the hill is disturbing the young sensitive mind. For violation of spirit, nothing can take the lead from:

> *Seesaw, Marjery Daw/Johnny shall have a new master/He shall have but a penny a day/Because he can't work any faster.*

Even the image accompanying this rhyme is violating (see p. 40 of Lady Bird Series, Book One). Here child disparity and classism based on child labour, altogether unhealthy concepts, are being so blatantly allowed to manifest themselves. For class snobbery, take another illustration from 'the Queen of Hearts' in which the knave of hearts steals the Queen's tarts and gets so sorely beaten by the king that he vows never to steal again If this is meant to discourage stealing, it is certainly not the smoothest way to do so. Racism, at its worst, appears in :

> *Line Mine Mama Moe, Catch a Niggar by his throat.*

That this cruel rhyme forms the basis of 'elimination' when deciding turns in a game is not at all surprising.

For the vulnerable young mind, 'Simple Simon' provides another harsh reality. Simon, simple as he is, wants the piemen to let him taste his ware, whereupon he is asked to show his 'penny' of which he has none. That abrupt lesson in marketing is oddly enough followed by two cruel jibes about Simple Simon going fishing trying to catch a whale in pale, and of pricking his finger while trying to get plums from a thistle. If this is funny, I don't know what cruelty is

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[2] Published by Lady Bird Books Ltd., Loughborough, UK, 1965 in 3 volumes entitled *A First (Second and Third) Lady Bird Book of Nursery Rhymes*, each consisting of 24 rhymes.

Leave the rhymes alone for some time. Let us take a look at famous stories. Little Red Riding Hood's tale is appalling. In there you have a wicked wolf wanting to eat her up, and actually managing to eat up her grandmother and her (in one version). Later, the wolf's stomach is slit open with a knife and the two jump out alive and well. (The same sort of ending faces the wolf in the story concerning the three pigs, and the other concerning the mother-goat and her kids) Apart from projecting straight violence, such themes obviously alienate the young child from the animal world who soon begins to imagine that every wild animal is out to eat up little children and their elders. In another famous story 'Goldilocks', the otherwise cheerful content of the story becomes unnecessarily morbid with the three bears pouncing on Goldilocks upon finding her asleep in the bed.

Violence in the form of sadism from wicked people, either step-mothers, step-sisters, and witches, etc. is a favourite theme common to many children's fables such as 'Cinderella', 'Snowwhite', and 'Hansal and Grettel'. In today's rapidly changing sociological environment, with fluid marriage spans and partners as in the West, I wonder if the sadistic role assigned to 'step' or 'alternate mother' is really justified. It is not biasing the consciousness of the child from an early stage itself from accepting an alternative to mother? Even without the pressures of a fluid marital situation, what is the real underlying value that we are trying to generate among children by presenting such a distrustful and unkind image of the step figure or of the animal world?

Another morbid feature in children's literature is the characteristic involvement with death. Take, for example, the morbidity in the otherwise innocuous rhyme which every group of young children is bound to be taught

> *Oranges and Lemonz/Sold for a Penny*

It ends up asking to be remembered when

> *I am dead, dead, dead, dead, dead,*
> Another one recounting number from "*One to Seven*" *commands that* "*All good children go to Heaven. When they die they stay in Heaven.*
> *One two three four five six seven*"

That this morbid charm of death is potent from the early stage itself becomes evident to me when I chanced to read the inscription on a musical bird strung up on my daughter's cot unwittingly for many months. Quite by accident one day I discovered that the words inscribed on the bird and supposed to accompany the music were to the effect that

> *When atlast it is time for me to go into Heaven,*
> *O dear angels come and carry me.*

Needless to say, I dismantled the musical bird (a "Fisher" toy) abruptly as soon as I discovered the 'wisdom' behind that gentle, innocent-sounding melody!

The worst is that such morbidity is not peculiar to imported western children's literature, but it also finds expression in our own Indian writing for children. At least this is certainly true of current writing. The animal world in *Panchatantra*[3] and the human world in other old Indian epic stories may be left outside the purview of my comment. But of today's compositions, the adjective morbid is amply justified. One of the rhymes taught, for instance, albeit a translation of 'Jack and Jill' reads,

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[3] An old collection of fables.

> *Moti Kamla Chare Pahari/Bhar lane ko pani/Moti phisle Sir bhi toota/Mur gayee uski Nani*

(Meaning two children by the name Moti and Kamla went up the hill to fetch water, and Moti fell, broke his head, and learned the lesson of his life) However, the last clause, a figurative speech, can be literally interpreted by the young child to mean that Moti's maternal grandmother (Nani) died. That, in my daughter's case, caused sufficient heartburn for me to alter the text slightly to read *Yad ayee usko Nani* (meaning he remembered his grandmother when in pain) As another illustration, take the simple rhyme,

> *Ek tha Raja/Ek thi Rani/Dono mur gaye/Khatam Kahani.*

(Once there was a king, and a queen. They both died and the story is over) A similar depressing strain emerges also in our indigenous stories Among them, an old familiar one is that of an aged woman going to visit her daughter through a forest. The animals threaten to eat her up and she assures them that after she is fattened up, they can eat her Later, she tricks them by returning from her daughter's house in a pitcher. The animals follow her and she quickly reaches her home and throws some hot ash in their eyes After that, the animals, with their vision lost, never bother her again.

The worst is that somehow the morbidity of the plot (be it a story or a rhyme) compels the child's imagination and it evinces repeated enthusiasm for narration of the sections dealing with violence to animals or to the 'underdog' Thus, the part on 'whipping and lashing' of the pony named Dapple Grey by the lady riding him invites a forceful as well as repetitive recitation (My daughter at least seems to favour the 'whipping and lashing bit' quite noticeably in that particular rhyme). Just as predictably, when confronted with animals in the local zoo, her constant anxiety is, "Are they going to eat me up?"

Alienating Effect of an Alien Context

The other sorry feature of litetature for the young is the largely alien and unfamiliar idiom as well as imagery utilized therein. Be it Little Bo Peep or Little Miss Muffet Bobby Shafto, they are all alien images for our children. When the child sings of a baker's man patting a cake, or of hot-cross buns, the same unfamiliarity comes in. Even day-to-day concepts such as of having 'supper', sitting on a 'tuffet', sowing a 'fine seam', etc. are hard to visualize. Yet, children in urban India are endlessly made to learn and mouth these unfamiliar idioms and concepts. What irks me most is when eager publishers, interested to peddle tested, saleable concepts to our children, ask whether work on translations of 'Jack and Jill' and 'Hey Diddle Diddle', etc. could be undertaken, Why? So the aping Indian elite supposedly can have its cake and eat it too.

Apart from morbidity alienness, there are other glaring shortcomings in this 'entrenched' literature for children which are abusive of values that need to be upheld today. The concept of woman, for one, is so superficial. 'Curlylocks' is told to sit on a cushion, and eat strawberries and cream rather than wash disheas. Poor sop!

Likewise, some of the concepts taught through the so-called nursery rhymes are quite precocious or even premature. Thus, I find my daughter reciting about Bonnie Bobby Shafto "coming back to marry me" and "being my love for ever more" rather weird. There are several such examples of premature longings which are callously injected into the young child through the seemingly harmless means of a nursery rhyme.

Solution

What is the remedy? Ordinarily, for those of us who are seeking to break this monopoly of English nursery idiom over our schools and our young children, the stock reaction offered is, "well, we have nothing better or other to offer." Or worse, "our parents won't permit us to replace the well-known western nursery literature with indigenous stuff." Of all these ham apologists of the existing system, it should be said that they never mean to bring about any change, simply because they are unable to see or concede that anything is wrong about these "beautiful, age-old English nursery rhymes." They are not exactly being indiscrete in promoting these for school curricula throughout India. The real problem is that they have never used their discrimination to decipher the chaff from the grain.

The parents, of course, have been the proud and passionate supporters of such a system. This has strangled any initiative toward indigenization. In today's India, where we recognize a host of languages as modern Indian, and at least one (Hindi) as the national language, it is revolting that well-known recognized pre-schools in Indian cities can say, "Of course we do not teach Hindi and Marathi". For such schools and such educationists, the effort to transplant English nursery literature with Indian images and idiom would be inconceivable and sacreligious. But that exactly is what is intended, through this article and such endeavours. Howsoever modest, they are intended to break this foreign monopoly over the minds and imagination of our vulnerable young.

In this task of 'import substitution', governmental intervention, manifested through NCERT's endeavour sat developing independent curricula, is commendable. Regrettably, however, it has concentrated so far on upper primary, middle and secondary levels, thus leaving an insufficient dent on indigenizing the content of pre-primary education.

With all the talk of curriculum reform and of relating education to the child's environment, it is time that some premises of our existing nursery and pre-school education be critically evaluated, rather implemented indiscriminately. ☐

The School Drop-outs

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THE Government of India is viewing with concern the fact that even after 27 years, the Constitutional Directive contained in Article 45 which enjoins that "the state shall provide free and compulsory education for all children until they complete the age of fourteen years has not been achieved. This goal was to have been attained by 1960 Therefore, one of the two priority sectors in the field of education during the sixth Five Year Plan identified were: (*i*) the universalization of elementary education, and (*ii*) the education of illiterate adults. The magnitude of the problem varies between states and is greatest in Andhra Pradesh, Bihar, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. It is indicative of the economic progress made in our country that the Union Government is now able to set aside considerable amount to give as financial assistance particularly to the above eight educationally backward states.

Certainly, since 1950, the enrolment in elementary education has been increasing but with the increase in population, the task that still remains to be done is vast and almost comparable to that in 1950. According to the statistics provided by the Working Group on the Universalization of Elementary Education, 452 lakhs (136 lakhs boys and 316 lakhs girls) additional children require to be enrolled during 1978-83, to achieve universal education. It has been estimated that nearly 74 per cent of the non-enrolled children are in the eight backward states—46 lakhs in Andhra Pradesh alone

The problem cannot be solved by enrolment only. A more insidious aspect of the problem—an aspect that is less tangible and quantifiable and more difficult to solve—is that of the school dropout. Not every child who enters Class I goes through Class VII or Class VIII.

Approximately, 60 per cent of the children who enrol in Class I drop out of the school before they reach Class V. It is a waste of financial resources, as well as a waste of valuable human resources. What is the remedy ? Before we seek the remedy we have to isolate the sources of the problem because dropping-out of school is but the external manifestation of shortfalls in the educational system.

Let us think of the problem in more personal terms. If you or I were to enrol in a course of study and decided along the way to drop out, what would some of the most common reasons be ? Some reasons which come to my mind are:

(*i*) Lack of interest because the course-content is not relevant to our needs.

(*ii*) Insufficient time to attend the course. Perhaps it is being taught during office hours and we have run out of excuses to give our bosses for coming late.

(*iii*) It is too expensive

(*iv*) The school is too far away and transportation is a problem.

(*v*) The teaching is of poor quality.

I am sure you can think of other reasons. It is not difficult to see how these very reasons could be the ones causing large-scale dropping out at the elementary school level.

One of the principal reasons for the high drop-out rate, particularly at the primary school stage, is the curriculum. The curriculum should become relevant and meaningful to the local conditions and should cater to the needs of the pupils. In the wake of the growing awareness of the inadequacies of the present curriculum, Dr. P.C. Chunder, Union Minister for Education and Social Welfare, in his capacity as President of the National Council of Educational Research and Training, appointed a Committee to review the syllabi and text-books for the Ten-Year School under the Chairmanship of Shri Ishwarbhai J Patel. The Committee submitted its report in 1977. The curriculum, they felt, had to be built round local situations though it was essential to have a core of basic subjects, because it is necessary to have a uniform yardstick for judging ability and performance. However, this core should be minimal. The present educational system is urban-oriented, theoretical and almost without any useful manual activities. The Committee felt that this system has proved discriminatory against the poor and weaker sections of the community. Therefore, the Committee advocated the inclusion of 'socially useful productive work' in the curriculum—the term being defined as "purposive, meaningful, manual work resulting in either goods or services which are useful to the community". The idea behind this suggestion is that the children see the relevance of what they are learning at school, the tendency to drop out will be less. I once questioned two boys (aged about 12 years, who came to fix an electrical connection) why they were not in school The answer I got was : "I left school because I did not find it useful"—an eloquent commentary on the present curriculum !

Formal schools are, for the most part, inflexible in their working hours and this rigidity prevents many children from completing elementary school Particularly in the rural areas, but also in the urban areas, children are needed for various assignments in and out of the house during the day when most schools are in session. If these children are to be educated they need schools with flexible hours. In a survey that I am directing in Hyderabad district a number of school drop-outs have been questioned. Quite a few of them were eager to continue their studies, if they could attend classes in the evening or night. In addition to flexible school hours the Government of India is enthusiastically promoting the idea of non-formal centres of education and part-time education for children who are not able to attend formal schools. If the suggestion is successfully implemented it should considerably reduce the drop-out rate.

Frequently a child drops out of school because the school is too far away. This applies particularly to girls. It is the goal now to have an elementary school within 1-1½ km. from each village. Surveys are being made to locate where schools are needed and a massive building programme will be the next stage in bringing school facilities within easy walking distance for every child.

The way to a child's heart as to a man's heart is through his stomach. The mid-day meals feeding programme in elementary schools has been a powerful enticement to children to come to school, and poverty-stricken parents are happy to see their children have at least one balanced meal a day. Unfortunately, primarily for financial reasons, only 16 per cent of the school-going children in Andhra Pradesh are covered by the mid-day meals programme. This compares unfavourably with the two neighbouring states of Tamil Nadu and Karnataka. Efforts are being made to increase the coverage considerably over the next five years. Linked with this issue is that of children's ill health, frequently caused by malnutrition. Sickness causes many children to drop out of school. The need for an integrated approach to education is apparent one in which a child's intellectual and physical needs are taken care of. After all, for a healthy mind a healthy body is necessary.

Quality of teaching and the lack thereof has become a fairly common phenomenon. Even the basic skills of reading and writing are not satisfactorily imparted Almost totally ignored is the necessity to develop a child's personality along with his intellect so that the end product is a well-rounded individual. Children are very sensitive, and a careless, indifferent or rude teacher is often sufficient reason for a child to stay at home, especially when he cannot see the usefulness of what he is studying.

The non-detention system from Classes I to VII in Andhra Pradesh was introduced to avoid stagnation and wastage. As a concept non-detention is praiseworthy when the inbuilt safeguards of constant and periodic evaluations and assessments are adhered to. Unfortunately, when these are not done in practice, the child ends up his studies in Class VII with very little more knowledge than what he had when he joined and gets a rude jolt in Class VII "common examination". Properly implemented, the system could help reduce the drop-out rate.

In my opinion, a major reason why so many children drop out of school is that their parents are indifferent or opposed to sending them to school even when they are not really needed at home. Here again the victims are most often girls And this is where adult education is so closely linked with the universalization of elementary education. When parents see the value of an education—be it formal or non-formal, full time or part-time—they will want their children also to be educated. The Government of India is giving massive financial and professional assistance to the states for the spread of adult education. But the government alone cannot universalize elementary education or eradicate adult illiteracy. We will need the cooperation of voluntary agencies, social workers, college students and everyone who has the desire and ability to help. To give every citizen his basic right to an education within the next five years is our goal. □

The Role of Parents in the Education of Primary School Children

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THE primary school stage is the formative stage of a child because the experiences the child undergoes during this period have a direct bearing on what he becomes later. Since the primary school child is dependent on his parents due to his tender age they exert a great influence upon him. It is, therefore, necessary that they are aware of the need to deal with the child in ways which would be of such a nature as to have positive influence on him leading to healthy growth The following are a few specific ways parents may attempt while dealing with academic aspects of their child's activities.

Achievement Level of the Child

While it is quite natural on the part of parents to aspire for high level of achievement of their child, the basic capacities and interests which, to a large extent, determine this achievement, should not be ignored The basic capacity of the child could be inferred at that level which the child attains over repeated performance of various academic activities. Although the level of achievement of any child can always be raised through organized help for this purpose, yet it would be in the best interest of the child that parents do not unduly emphasize unreasonably high level of achievement. The expected level of achievement should be seen in terms of a gradual improvement in pupil's performance over the previous level. Interest of the child at this stage can be inferred from his inquisitiveness to get details regarding objects around him. In trying to foster interests in the child, parents should make deliberate attempts to make the child select interest of his own accord rather than through insistence One such attempt could be to place toys, games, magazines, tools, etc within easy access of the child so that he could choose which is of his interest. Better understanding of the basic capacity and the interest of the child could be done if deliberate efforts are made to carefully observe the child as he performs several activities, listening to him and further through enquiries from teachers and others closely associated with the child.

Home-Tasks

An important academic aspect of the education of the child is the home-tasks which the pupil is allotted everyday As far as the primary child is concerned, to expect him to complete home-tasks daily, may be demanding too much from him. It may be stated here that home-tasks given to the child is to reinforce the concepts already studied in the class. On an average, primary school in most parts of the country work for about 5-6 hours. After this, if the child is required to do the home-tasks which may take two hours or more at home to complete, this may be too taxing for the young child. Therefore, it would be preferable that for children at lower stages, there should be no home-tasks to follow up the work carried on in school. If the school is having a practice of giving too much of home-task, it is parents' responsibility to express this viewpoint to school administrators and teachers at Parent Teacher Association (PTA) meetings. However, one may guard against the danger in this respect, if the purpose of home-task is to help the child consolidate his learning in school, then 'no home-task' to him might mean to withdraw this assistance because the child's activities might then lack an overall direction. In fact, the decision of 'home-task' or 'no home-task' on the part of a teacher will very much depend upon the amount and the nature of the task he would propose If the home-task includes activities that can interest the child, it can be utilized for effective learning even at the early primary stage.

At the upper primary stage, however, if some sort of home-task may be given to pupils, perhaps one way may be a completion of the unfinished class-work This could be done at home after an interval of 3-4 hours following the pupil's arrival at home during which he could be engaged in play of some such leisure activities. Many times, parents insist that the child should attend to his home-work immediately after coming back home. They do it with good intention of ensuring the completion of the child's work and thereby developing in him regular habits of work. In reality, it does not seem to work with the child in this manner. On the other hand, making the child do his work after a play interval of a few hours as mentioned above, would help him not only do the work with interest and concentration but would also develop in him healthy attitude towards work and play activities. Here again the amount and nature of the home-task should be such that it unfolds various aspects of child's development.

An issue closely related to this is that of how much of assistance would parents have to give their children in the performance of home-tasks or any other activity relating to their studies, which the pupil may have to perform at home. Here the main question is again related to the purpose of giving home-task to the child. While through this work it is intended to extend the influence of classroom to the home environment, greater purpose lies in making the child take initiative to do the work. Parents should help the child, therefore, only when they feel that the child cannot do so on his own. Even in such situations, they should enable him to do it by leading him to the next step of the work. Many times it is observed that parents, especially mothers, complete the home-work for the child. They are then, perhaps unduly concerned about the child's performance as indicated by his teacher's awards, etc. Little do they realize then, that they are doing a great harm to the child as he would further lose the initiative and wrongly look for continued assistance. Having agreed to help the child only to the minimal, the question would remain as to how to make the child take that initiative. This initiative can be developed through careful planning and execution of his activities by the child himself. For example, on a holiday, parents can tell the child that there would be a programme of his interest, but at the same time, they may ask him to plan his work, home-task and play activities, etc. in such a way that there is enough time earmarked separately for each item. Parents then, can casually remind him to do it according to the schedule prepared by him only.

What parents are constantly worried is the child's performance in school tests as well in day-to-day situations They thus keep on making appraisal of child's progress against the standards they set for the child. It has been commonly observed that the parents often compare child's performance with that of other children, specially brighter ones, and decry the child for low performance. Such a comparison leaves a discouraging note with the child and thus does more harm to him. More appropriate action in this situation on the part of parents should be to compare the child's performance with his own performance. Any improvement in his own performance as compared to his previous one should be taken with significance and brought to child's notice with encouraging words. Such an approach is more realistic to help the child actualize his full potentially.

Making the Child Self-dependent

Another commonly observed behaviour on the part of parents is that they would hesitate to allow the child run small errands, like purchasing small items on making payments for certain domestic bills or even depositing the fee in schools. This hesitation arises due to apprehensions that the child might lose some money or mismanage certain items. Of course, it would be advisable intially to introduce the child into doing such jobs along with parents. But, let it be realized by parents that even at the risk of losing some money or ill-management of jobs, they would be giving the child very much needed experiences for his growth. This would help the child become self-dependent and develop proper attitude toward life activities.

Development of Values and Behaviour Patterns

One important aspect of the child's development for which parents are largely responsible is that of the sort of values the child develops In the main, these values are developed through imitation of parents' and others' values. Therefore, in order that the right values are developed in the child, it is necessary that parents exemplify such behaviours which display desirable values Parents going to work in time, taking responsibilities for certain activities in the work situation, dealing with people honestly in their day-to-day routine, are prerequisites for the child to develop similar values. A child would always notice the discrepancy, if any, between what a parent practises and what he asks the child to do. These double standards reflected in parents' behaviour would hinder the process of value inculcation in the child. When the discrepancy is low, the child has a fixed pattern of values which he would adhere to unflinchingly and the result would be the development of a wholesome attitude towards life.

Parents would also be responsible to some extent, for the development in the child of certain specific behaviour patterns needed for acceptable behaviour of the child in groups—behaviours like, speaking in a modulated voice, listening while a person talks, speaking one at a time The home will largely carry this responsibility of providing to the child the help needed to develop such behaviours through exemplifying them through their own behaviour, and also through proper guidance

Significance of Child's Attendance at the School

Another issue regarding the child's progress in school is that of his attendance at the school. Each day of attending the school is a valuable experience to the child and, therefore, should be reckoned with significance in regard to his growth It would, therefore, be advisable to keep the child away from school for reasons which indeed are genuine and sufficiently convincing to the child himself And, the concerned teachers at school should be given this correct information. Many a time, parents have to go to some function or programme which may be of significance to them but not to the child. Yet, the parents ignore this point and take the child too with them very often for false social reasons, thereby keeping him away from school. In fact, what a child needs most is a constant encouragement to do the right things. In spite of his shortcomings, which at times may make him diffident to attend classes, least of all to participate in school activities, encouraging parents for a child of this age represent an invaluable asset. Obviously, this, however, is not to suggest that the child is to be given encouragement to do things beyond his abilities

Parent-Child and Teacher-Child Relationship

However, the primary child is not an entity which can be considered in isolation. Parent-child relationship represents only one dimension of influence on the child's development. The teacher-child relation too, is a significant factor influencing his development. To complete this ring of adult influence on the child, there is a necessity to understand the parent-teacher relationship so that the combined influence of these significant adults on the child is also coordinated. Such a complementary role influence on the child be sought through interaction between teachers and parents at PTA meetings and through similar contacts.

To Sum Up

In the feregoing sections an attempt is made to clarify the roles and responsibilities of the parents with regard to the process of developement of the child in desirable ways in school and at home. To put it in a point blank manner, the parents have to

- —motivate the child in his activities,
- —make the child easy with home-task,
- —encourage the child to take initiative in learning and other activities,
- —compare child's performance with his capacities,
- —give the child experience of small but responsible work,
- —be alert to child's development of desirable values,
- —be alert to child's development of specific behaviour like listening while a person talks, etc ,
- —be alert to child's attendance at school

With the expectation of parents functioning in the ways indicated above, a point or two may be made here. Looking to the psychological and educational aspects of the behaviour that would be necessary as a background on the part of the parents to enable them to function in the proposed manner, it may not be enough to have the expectations of such behaviours from them. But planned efforts may have to be made to give the parents scope to educate themselves in these expected behaviours. This can be achieved through intimate discussions in the PTA meetings as well as organizing special orientations for the parents with the purpose of providing them necessary psychological and educational background.

In conclusion one important point remains to be clarified. Some of the measures to be taken by the parents regarding child's development in the home environment may seem to be applicable to situations obtaining in families of upper social and economic status This of course does not invalidate the points made in respect of parents' role and responsibilities. If the parents in any socio-economic status may be made conscious of the basic attitude towards the development of their child, many of the problems related to education of the primary school children will get solved as the parents would then be led to think of providing the proper home environment to the child within their social and economic limitations. □

The National Adult Education Policy and Programme*

POLICY STATEMENT

Exclusion of a vast majority of the people from the process of education is a most disturbing aspect of educational and social planning. This has been uppermost in the consideration of the present Government ever since it assumed office in March 1977. While determined efforts must be made to universalize elementary education up to the age of 14 years, educational facilities must be extended to adult population to remedy their educational deprivation and to enable them to develop their potentiality. Indeed, universalization of elementary education and of adult literacy are mutually inter-dependent.

The Government have resolved to wage a clearly-concieved, well-planned and relentless struggle against illiteracy to enable the masses to play an active role in social and cultural change. Literacy ought to be recognized as an integral part of an individual's personality...

Adult education should emphasize imparting of literacy skills to persons belonging to the economically and socially deprived sections of society. However, such persons often lack motivation for sustained participation in literacy and follow-up programmes. In this context, stress should be laid on learning rather than teaching, on use of the spoken language in literacy programmes and on harnessing of the mass media. Motivation also depends on an awareness among the participants that they can transform their destinies and that the adult education programme will lead to advancement of their functional capability for the realization of this objective. Moreover, a literacy programme unrelated to the working and living conditions of the learners, to the challenges of the environment and the developmental needs of the country neither can secure an active participation of the learners ; nor can it be an instrument of development of progress.

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*Excerpts taken from *The Training of Adult Education Functionaries A Handbook*, Directorate of Adult Education, Ministry of Education and Social Welfare, New Delhi, pp. 177.

Adult education, therefore, while emphasizing acquisition of literacy skills should also be :

- —relevant to the environment and learners' needs;
- —flexibile regarding duration, time, location, instructional arrangements, etc diversified in regard to curriculum, teaching and learning materials and methods; and
- —systematic in all aspects of organization.

According to the Census of 1971 the total number of illiterate persons above 14 years of age is 209.5 million, of which 97 1 million are in the age-group 15-35, which is likely to be about 100 million at present. A massive programme should be launched to cover this vast segment of population in 15-35 age-group as far as possible within five years of its launching. This implies organization of special programmes for women and for persons belonging to scheduled castes and scheduled tribes. The regions which have a concentration of illiteracy will also require special attention. .

Adequate financial and administrative support will be essential for organization of the massive programme. Provision shall have to be made for a programme comprising literacy as well as environmental and social education, extending to approximately 300-350 hours or about 9 months, and also taking into account other costs. The required resources shall have to be provided by the Government, local bodies, voluntary agencies, trade and industry, etc...

It is of the greatest importance that implementation of adult education programmes is decentralized It would also be necessary to establish agencies of coordination and catalization A National Board of Adult Education has been established for this purpose by the Central Government and similar Boards should be established at the State levels. Suitable agencies should also be created at the field level for coordination and for involvement of the various agencies in the programme.

NATIONAL ADULT EDUCATION PROGRAMME

Phasing of the Programme

...National Adult Education Programme (NAEP) will be inaugurated on 2 October 1978. However, for all practical purposes the period from now until the end of March 1979 will be treated as the period of intensive preparation. Preparatory action would include the following areas :

1. Substantial stepping up of the programme from the existing level of approximately 0.5 million to at least 1.5 million in 1978-79.
2. Creation of an environment favourable to the launching of NAEP.
3. Preparation of case studies of some significant past experiences, particularly those where the failures or successes have a bearing on the planning and implementation of NAEP.
4. Detailed planning of the various segments of the programme by appointment of expert groups—this would include preparation of detailed plans for each State and Union Territory.
5. Establishment of necessary structures for administration and coordination and necessary modi-

fication of procedures and patterns.

6. Identification of various agencies, official and non-official, to be involved in the programme and taking necessary measures to facilitate the needed level of their involvement.
7 Undertaking of necessary exercises to clarify the required competencies, particularly in literacy and numeracy, which would form part of all field programmes.
8. Development of capability in all States for preparation of diversified and need-based teaching/learning materials as well as making available teaching/learning materials for starting the programme.
9 Development of training methodologies, preparation of training manuals as well as actual training of personnel at various levels to launch the programme.
10. Creation of a satisfactory system of evaluation and monitoring as well as the required applied research base.

Preparatory action will, however, not conclude at the end of 1978-79 Action on almost all the items listed above would need to be taken for at least a year even after launching of NAEP. Indeed, in a sense preparatory action for the following year, based on concurrent appraisal, shall have to continue right up to the conclusion of the programme. .

Creation of the Favourable Environment

The results of the Experimental World Literacy Programme as well as the experience of the countries where illiteracy eradication programmes have successfully been implemented show that a systematic effort must be made for creation of an environment favourable for launching of such massive programme The Prime Minister and the Education Minister have already declared that the highest priority needs to be given to adult education. Leaders of almost all political parties in Parliament have wholeheartedly endorsed the programme and have given assurance of support. This, it is hoped, would be followed up by leaders in various other walks of life such as trade unions, trade and industry, students and youth. A crucial role can be played, in this context, by the mass media—films, TV, radio, newspapers, publicity posters, etc. This would require an ingenious and coordinated effort, in which official and non-official media shall have to converge to serve the objectives of the programme. In addition, a number of other methods could be explored, including holding of seminars and symposia, celebration of the World Literacy Day in schools and colleges, etc The various ways in which an environment can be created shall have to be studied in detail and necessary measures taken as soon as possible.

The Approach

. Traditionally, distinction is made between the selective and the mass approaches—distinction being based on the extent of coverage and quality of the programme NAEP is a mass programme with the quality of planning and implementation of a selective programme In fact, in relating the programme to the needs of the learners, the NAEP is even more audacious than the conventional selective approach. At the same time it has to be recognized that a task of this size can be faced only if NAEP is viewed as a mass movement, to which all sections of people and agencies must contribute.

One of the recurrent issues in adult education planning is motivation of the adult learners Even when they can be stimulated to participate in adult education programmes initially, their interest is not sustained and they tend to drop out. The problem is particularly grave in respect of women and persons belonging to the scheduled castes and scheduled tribes ..

It is important that the adult education movement should be closely linked with the planning strategy, which emphasizes elimination of destitution through intensive area planning and by giving employment orientation to development. For this purpose close cooperation should be created with the dominant development activity of the area, whether it goes under the rubric of Integrated Rural Development or Integrated Tribal Development or Employment Oriented Area Planning or DPAP, or whatever. The adult education programmes should strive to establish mutually supportive linkages with that developmental activity...

Resource Development

The conceptual position spelt out in the Policy Statement implies creation and development of a resource base for NAEP. The resource base should include creation of diversified and need-based learning materials, equipping the various categories of personnel for playing their role and infusion of a system of evaluation and research to impart dynamism to the programme. At the national level the Directorate of Adult Education as well as the various agencies of the Central Government and national level voluntary agencies would form the National Resource Group. The important level in resource development is the State Resource Centre (SRC) which, in cooperation with the National Resource Group and continuously interacting with the field can become the focus for resource development. One of the important functions of the SRC is to strive for devolution of resource base at the district or project level. SRCs are not to be institutions working in isolation from other institutions, but rather as coordinating agency for involvement of various institutions and individuals having a contribution to make in resource development .

Involvement of the people, i.e. the illiterate masses for whom this programme is primarily meant, with resource development will be crucial to the authenticity of the resource base. This is also inherent in the conceptual position as spelt out in the Policy Statement

The various resource components may be identified as follows :

Teaching-learning materials. The initial exercise in this connection shall have to be about identification of teacher's needs. Detailed curriculum, indicating among other things the expected learning outcomes, shall have to be spelt out on the basis of the curriculum and after necessary testing, teaching aids and learning materials shall have to be prepared with the greatest care...Since it may be possible to develop teaching-learning materials at the district/project level within the next one year, as an interim measure SRCs will prepare materials in standard regional or sub-regional language/ dialects..

Training. The categories for whom training shall have to be provided would include .

—Key functionaries at the national and state levels.

—Professionals and experts in specific areas such as curriculum construction, preparation of teaching/learning materials, training, evaluation, etc.

—Functionaries at the district, project and block levels

—Field level supervisors

—Adult education centre instructors

The Directorate of Adult Education, in cooperation with Unesco and several national agencies, is developing methodologies and manuals for training Training of key personnel at the national, State and district levels has to be the responsibility of the Central and State Governments SRCs should be able to coordinate training programmes for project and block level functionaries as well as for supervisors and the responsibility for organization of training programmes for the instructors of adult education centres shall have to rest with the agency responsible for implementation of the programme at the field level.

Monitoring, evaluation and applied research A mass education programme inevitably, faces the risk of considerable wastage and misreporting In this connection the importance of systematic monitoring and evaluation cannot be exaggerated. It must permeate the entire programme and should provide feedback for introducing necessary correctives from time to time. It is also important to have inbuilt arrangements for applied and coordinated research so that the experience of NAEP is systematically analysed and provides guidelines for future action The Central Government and State Governments are naturally interested in systematic monitoring. Universities and institutions of higher education as well as SRCs will have an important role to play in evaluation and applied research. Monitoring and evaluation mechanisms should get built at the district and project levels also, for it is mainly there that the feedback has to be used for introduction of correctives.

The Instructional Agencies

.. The governing consideration in assigning responsibility for instructional arrangements should be the suitability of the persons concerned to organize programmes with a grasp of the conceptual standpoint and with a spirit of commitment. The various categories of persons who could be assigned instructional responsibility would include the following

(a) *School teachers* In spite of several obvious limitations based on the experience of their performance, particularly authoritarianism and rigidities connected with the formal system, the teachers may have to be one of the main agencies for organization of instructional arrangements in NAEP. Although, ultimately work in an adult education centre could be made essential part of the duties of the teachers, for the present it would be desirable to keep this entirely voluntary. Even amongst persons who volunteer to take this responsibility, a selection may have to be made of persons who can be expected to be genuinely committed to this programme .

(*b*) *Students*. Either as a part of the National Service Scheme, which may have to be suitably modified, or in any other appropriate manner, students in institutions of higher education may provide a valuable agency for organization of adult education centres. .

(c) *Village youth.* There are a large number of unemployed or under-employed village youth with some education who could be entrusted this responsibility after they are given a carefully planned training for necessary upgradation of their academic level and an orientation for this responsibility ..

(d) *Ex-servicemen and other retired personnel.* This category of persons can play an important role in urban as well as rural areas. Retired personnel do need financial supplementations of their income, equally important they also need an occupation to keep themselves busy..

(e) *Field level government and other functionaries.* It might be possible to involve functionaries such as the village health worker, gram-sevika, bal sevika, VLW, functionaries of Cooperative Societies and Village Panchayats, etc.

(f) *Voluntary social workers* Particularly among the urban areas, there are large number of persons who are willing to make their contribution to community development. The energies of such persons should be tapped and special arrangements made for their involvement.

The Implementation Agencies

The Government will naturally have to gear up to shoulder its responsibility in NAEP. On the basis of review, the existing programmes run by government agencies shall have to be recast It seems desirable that rather than spreading the programme thin in all parts of all the districts in the country, in the beginning effort should be concentrated in compact areas. The size and the programmes of the Ministry of Education shall be substantially enlarged with a view to widening the involvement of various agencies. However, a mass movement which would extend to such a large segment of population cannot be organized by one Ministry or department Every effort must be made to involve other Ministries and departments with a view to sharing the responsibility for organization for adult education programmes . Besides, the State Governments will have to reappraise the adult education programmes they have been running in the past and steps will have to be taken to appropriately modify and strengthen them. While the primary responsibility of coordination and implementation will rest with the State Governments, the Central Government should be concerned not only with policy formulation and issue of general guidelines but should also oversee that the programmes are implemented by the State Governments in accordance with Policy Statement. .

Whether or not NAEP becomes a mass movement will be determined by the extent to which youth and students can be motivated to commit themselves to this programme It might be comparatively simple to review the functioning of the Nehru Yuvak Kendras and to concentrate their effort on adult education. Similarly, youth men and women who have completed their formal education and who feel stirred to participate in this programme would be natural partners in this endeavour. .

The employers, whether in private sector or public, must play an important role in the spread of adult education among their employees. It might be appropriate, in due course, to make organization of adult education programmes obligatory for all employers. Meanwhile, through organizations of trade and industry and other employing agencies an effective beginning could be made. .

The local bodies, such as municipalities and panchayati raj institutions, have been playing an important role in the field of formal education as well as social education. These agencies, which have civic and developmental functions, have the advantage of being in touch with the people—their everyday problems as well as their needs—and, therefore, they should be expected to participate in the task of implementation of NAEP

Planning, Administration and Supervision

This is the first time that the Government have decided to launch a well-planned programme of adult education for such a large segment of the illiterate population. Planning for such a programme and its implementation will require support by a large variety of persons including social workers, perspective planners, management experts, systems analysts, inter-disciplinary teams of academics and, of course, adult educators

A programme of this magnitude must provide adequate arrangements for supervision and guidance. The supervisor should not be an inspector in the traditional meaning of the word but a specially selected professional with an aptitude to facilitate the work of the incharge of the adult education centre. The voluntary agencies would naturally wish to have their own supervisory arrangements In the areas where the programme is administered by the Government agency, it shall have to be examined whether it would be desirable to have a separate supervisory system for adult education or to combine it with the elementary school supervisor ..

One of the major deficiencies being faced by Government as well as voluntary agencies is the absence of professional cadres of adult educators. Existing facilities in universities for preparation of such personnel are extremely limited and there is a case for their expansion. Training programmes of varying varieties for professional development shall have to be organized by Government, universities and voluntary agencies In addition to training it would also be necessary to examine the pay structure of the professional workers involved in adult education programme As far as possible, it would be desirable to ensure that persons coopted into adult education system continue to grow and progress within the system rather than being pushed out of it.

Financing the NAEP

The past experience has shown that owing to the pressures of various types it becomes necessary for the State Governments to divert funds provided for adult education either to other programmes of education or to other sectors of development. It is, therefore, necessary to devise an arrangement under which funds earmarked for adult education cannot be so diverted. At the same time, it has to be fully appreciated that the responsibility for planning and implementation of the programme in a state must rest with the State Government, with the Central Government being assigned the responsibility for wider involvement of voluntary agencies,try-out of innovative programmes, etc.

In addition to the mechanics of funding, it is necessary to emphasize adequacy. A Group of Experts of the Planning Commission and the Ministry has come to the conclusion that the per learner cost would be Rs. 55/- excluding the expenditure on Central and State level administrative structures, evaluation and monitoring and research and innovation. The Group has calculated this cost with reference to the number of persons enrolled and not those who will successfully complete the programme. The number of those who will do so may be about two-third the number of persons enrolled. It would be safe to assume that the per learner cost could not be less than Rs. 70 The expenditure on Central and State administrations, evaluation and research, etc, would be approximately 10 per cent of the total arrived at on the basis of aggregate of per learner cost. Adequate funds on the basis of these calculations will have to be provided.

In addition to the expenditure involved in organization of adult education programmes, provision shall have to be made, from the very beginning, for follow up and continuing education of neo-literates and persons who have acquired literacy in the formal system of education. Detailed calculations in respect of such programmes have not been made but it would be reasonable to provide an amount of approximately 20 per cent of the total expenditure for this purpose.

International Cooperation

In formulating NAEP and in its implementation cooperation should be pledged to Unesco and other instrumentalities of international cooperation based on mutual respect and equality. However audacious the objectives of NAEP be, we must begin humbly with a spirit to learn from those who have been harbingers in this field and from those who have developed special capabilities.

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Effects of Deprivation in Early Years on Learning

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IT GIVES me great pleasure to join hands with my colleagues in extending to all of you a hearty welcome to this seminar. The seminar is on an extremely important subject and is very timely. As you all know, the Government of India is very keen on introducing reforms in education so as to make education more responsive and relevant to the needs of the community as well as of national development. A consideration of the effects on learning of deprivation which the children have in early years of their life, is therefore, meeting at the appropriate time and its deliberations should contribute to the formulations of policy As participants to this seminar, therefore, you will have to give serious thoughts to the problems of research which are still unsolved so that in the near future we can expect to develop programmes of education and social welfare on the basis of the findings from research. I am thankful to you for giving me this opportunity to be with you this morning when we are going to begin the important deliberations of your seminar.

There are several questions which come to my mind to some of which I would like to draw your attention Some of these may not stand your scrutiny. Nevertheless, I venture to raise these questions because I think they deserve the attention of research workers in this field. Let me first take the question of what is meant by deprivation. The concept of deprivation is not quite clear. It is usually considered in material terms like economic deficit, nutritional deficit, and so on. But it seems to me that

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*Inaugural address to the National Seminar on Effects on Learning of Deprivation in Early Years, delivered on 10 May 1978.

deprivation on the social and cultural side is equally important. One may argue that there is a high correlation between economic deprivation, nutritional deprivation, social deprivation and cultural deprivation. I am not quite sure, however, that we have enough evidence on this in terms of actual correlation. In our country, a very large number of people are below the poverty line. I wonder if all of them can be called to be deprived of culture. In the case of India, one of the remarkable things is the lack of correlation between poverty and moral qualities of character; people who are poor are not less moral than people who are rich. It is, therefore, an unanswered question to my mind whether deprivation should be considered primarily in economic terms. I will even venture to suggest that deprivation as a concept needs very close examination, because deprivation cannot be considered to be a stimulus. What I mean is that a mere lack of something cannot be called stimulus. Stimulus has something which is positive It is present in some quantity which should be measurable. When we are talking of deprivation, therefore, I think what we have in mind is the consequences of deprivation rather than deprivation as such. The consequences of deprivation of food for a long period of time is hunger, but if the time span is increased beyond a certain point, hunger begins to decrease. So, when a hungry man eats food, his behaviour is in response to deprivation, which creates a need in the bodily system. The need is the positive aspect But we know very well that there is no one to one correlation between a deprivation and a need. Hunger is a need which is aroused by deprivation of food for somebody of time which it changes and some other need begins to appear. It is, therefore, necessary to consider the various dimensions of deprivation and their inter-correlations and to find out the periodicity of such deprivation in actual life. It is necessary to find out what the consequences of deprivation of various kinds are analogous to concept of need. I am suggesting this, because only the basis of such detailed and specific knowledge about each deprivation that is possible to build up a theory which will not only explain the effects of learning, but would also allow us to develop suitable programmes of action.

Another question is concerning the early years How early do we go ? Perhaps deprivation of certain kinds like nutritional deprivation begins in the womb of the mother. Certain other kinds of deprivation like language, company, love and affection, taste, manners, courtesys, etc. begin to appear later in life soon after birth. Can we say that in the matter of socio-economic deprivation or psychological deprivation we should begin from the first day of birth of child to make observations about the consequences of deprivation ? Some of the studies on this subject seem to indicate that it does not matter so much as to how early the deprivation started working What matters is how long the deprivation persisted and what was done to overcome the deprivation and at what stage ? One cannot talk of deprivation without talking of intervention. I think, therefore, that not only the kind and the degree of deprivation is important to consider, it is equally important to consider how early did it start, how long will it continue, with what intensity, with what evidence, against what kinds of intervention, and so on ?

One of the things that one finds from the research in this area is that the peculiar nature of the human being has not been adequately taken into account, just as psychological, social and cultural aspects of deprivation have not been taken into account. Human being is particularly different in the matter of consequences of deprivation There are plenty of Indian examples which can be easily overlooked as cases of over-compensation, but which need close study in order to understand and appreciate the very powerful forces which the human personality has within itself and with the help of which the person can overcome deprivational effects. As a matter of fact, one of the notions in India is that only a person who can so overcome the effects of deprivation, shows really the inner srrength, culture, and character, which is valuable.

There is a question concerning the effects of learning. When we consider the effects of learning, one can consider the effects on performance as an evidence of learning, important one can consider the evidence of process of learning One can consider the various aspects of learning in this context. What is of crucial importance, however, is the kind of learning that is effected by the deprivation and the kind of learning that is not effected by deprivation. For example, it is usually considered that because the brain is effected by deprivation, memory is effected and, therefore, intelligence and cognitive function is impaired. One can even understand the evidence of deprivation on the harmonal system of the body and through it the entire affective structure and affective learning of the new. There are studies on the effects on the physio-chemicals substances in the body, on the brain structure and function of the nervous system, and so on But I think it is important to consider to what extent deprivation effects learning of other kinds like social learning, learning to cope with reality, learning of values and ideals, learning of skills, and so on. Again, another observation of the Indian scene suggests that our people do not suffer that much from mental, social and cultural deprivation as from economic deprivation Their learning of the superficial kinds which are dependent on rote memory and requiring only the speed muscular response is perhaps impaired, whereas their learning about ideas and ideals about their coping processes and character are not impaired. But we need the attention of research on these aspects.

These are only some of the questions which strike me among many many others to which I thought I will draw your attention. I am sure that experts like you will consider many other things which require the attention of the research workers. I eagerly look forward to the deliberations of this seminar out of which should emerge some directions for future work in this important aspect of education and psychology in our country. □

Participation in Administration : What it Means

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THE demand for participation in administration of educational establishments has been vehemently and vociferously made by both teachers and students during the last more than a decade and the administrators have responded to this demand and conceded it at various levels and degrees in their own ways. The teachers and students have accepted or reacted to such gestures of the administrators differently according to their own understanding of what participation means or involves. Educational institutions having been organized and administered traditionally with almost total control vested in the head of the institution (Atkinson, 1969), and teachers and students having been subjected to the hierarchical rule and the demand for teachers' and students' participation in the decision-making processes of these institutions being a phenomenon of much recent time, it was suspected that the teachers' as well as the students' understanding of the concept of participation might not be in consonance with the way it is understood by social psychologists and managers and workers in business enterprises and industries, and for that matter in any social institution organized on democratic lines Since much of the actual or even desired perception of the state of participation in college administration would depend on the teachers' and students' own ideas of participation in administration or, in other words, participatory administration, it was considered worthwhile, before undertaking the survey of teachers' and students' participation to know what they understood by participation in administration and how similar to or different their understanding of a participatory organization was from the established concept of participation in a democratically organized and adminiered social institution.

According to Allport (1945) and Rao (1969) meaningful participation develops in the participants a sense of belongingness to the institution and provides for actual sharing by them in the making of decisions on policies, programmes and activities. A participant situation exhibits a feeling of identification with and commitment to the institution for all its activities and for all that it stands for. It provides for a situation in which a set of people are brought together in working relationships in a democratic setting and in which there is a constant enlargement of the areas of common interest (Baker, 1939) The social psychologists take participation to be a process through which attempt is made to bring about a kind of interpersonal relationship between the administrator his subordinates that is frequently described as democratic or participatory style of leadership. Krech and Crutchfield (1962) define a participatory organization in terms of participatory leadership exhibited in the organization and participatory leadership is that style of leadership in which the leader plays an active consulting and advising role but gives the subordinates much independence in making final decisions But the leadership style cannot be dichotomized into distinct categories' · (i) 'Inflexible autocrat' making decisions without regard to human values and (ii) the 'Democrat', flexible, permissive and getting the most of the satisfied subordinates. (Tannenbaum and Schmidt, 1958)

Tannenbaum and Schmidt held that relationship between superior and subordinates follow a continuum They have used seven gradations of leadership behaviour and functioning which are taken as indicative of the degree or extent of the participatory character of an organization. Their gradations of leadership behaviour are :

Boss-centred Leadership — Subordinate-centred Leadership

Use of Authority by the Manager — *Area of Freedom for Subordinates*

1	2	3	4	5	6	7
Manager makes decisions and announces it	Manager sells decisions	Manager presents ideas and invites suggestions	Manager presents tentative decisions subject to change	Manager presents problems, gets suggestions, makes group decisions	Manager defines limits, asks group to make decisions	Manager permits subordinates to function within limit defined by superior

Likert (1961) also has maintained that participation should not be thought of a single process or activity, but rather as a whole range of processes and activities in which giving or sharing of information is an essential step and one of the first in moving towards more complete participation where the administrator or leader begins to function as a member of a working team on equal footing with organization, members in determining and working out policies and programmes of the organization, i.e. in all its decision-making activities. Likert's scale of participation, however, spreads over 12 points from *a* to *l*—*a* indicating little or no participation, and *l* indicating much participation.

a—b—c—d—e—f—g—h—i—j—k—l
Little Participation
Much Participation

Incorporating both Allport's and Rao's understanding of the concept of participation and interpreting the way it has been defined by Baker and taking it with Tannenbaum and Likert as a continuum of processes, 11 structured situations were formulated in the form of statements (a, b, c, d,—k) which attempted to describe the administrator's functioning in the organization vis-a-vis the role/status he allowed the school personnel (teachers and students in decision-making on administrative matters of the institution ranging from practically little or norole/participation to the situation which described 'real' participation as understood by Allport, Rao, and Baker. These situations/statements, however, before they were put to use on teachers and students, were put to scrutiny by a group of experts in management and organizational behaviour who judged the situations/statements on their strength of describing paticipant situations and arranged them in a graded continuum of participatory leadership style and behaviour, ranging from no participant situation to maximum participant situation. In their ratings of the situations/statements the judges clearly indicated that participation in administrative policy matters was a higher order participant situation than participation only on programmes and activities and that the administrators seeking consultation and giving effective consideration to the views of the subordinates/participants was a more preferred participant situation than merely providing for a consultancy situation with practically no say of the subordinates, followed by a situation in which administrator seeks only the 'approval of his actions/decisions by his subordinates. These statements were then listed in a random manner and presented to 200 teachers and 218 students drawn from the faculties of Arts, Science and Commerce of 34 colleges of the University of Delhi and they were asked to indicate what they understood by participation in administration by checking the statement/statements which according to them described participant situation / situations and in case they found more than one statement in the list describing participant situation, they were asked to rank these in order of their preference. Among the 11 structured situations in the form of statements used to illustrate the instances of participation in administration, i.e.

(*A*) The administrator formulates policies and the plan of programmes and activities all by himself and neither consults nor gets them approved by teachers/students.

(*B*) The administrator formulates policies and the plan of programmes and activities all by himself and only gets them approved by teachers/students

(*C*) The administrator only gets the policies formulated by himself approved but develops the plan of programmes and activities in consultation with teachers/students.

(*D*) The administrator formulates policies as well as the plan of programmes and activities in consultation with teachers/students.

(*E*) The administrator consults but does not give any effective consideration to the views of teachers/students.

(*F*) The administrator does not seek consultation or approval of policies but gets the plan of programmes and activities approved by teachers/students.

(*G*) The administrator formulates plan of programmes and activities in consultation with teachers/students

(*H*) The administrator consults teachers/students and gives effective consideration to their views and suggestions on policies as well as the plan of programmes and activities

(*I*) The administrator considers running of the institution a cooperative activity in formulating policies and the plan of programmes and activities and work as co-partner and member of a working team on equal footing with teachers/students.

(*J*) The administrator considers running of the institution a cooperative activity and work as co-partner and member of a working team on equal footing with teachers/students only in formulating policies

(*K*) The administrator considers running of the institution a cooperative activity and works as co-partner and member of a working team on equal footing with teachers/students only in formulating the plan of programmes and activities.

The judges' pooled ratings of these descriptions/instances showed the description/instance 'I' as being nearest to 'real' participation followed by the instances J, K, H, D, C, G, E, B, F and A, in that order and indicated that the description/instance 'A' described the state of no-participation. The understanding of the teachers and students as a group is not perfectly matched with the concept of participation and the processes involved therein as it is interpreted by the judges as nearest to that given by Allport, Rao, Baker, Tannenbaum and Likert From the data collected it is observed that none of the eleven structured situations that were used to illustrate the concept and processes of participation is understood to describe the participant situation by 100 per cent of the respondents, teachers and students as a group, but all the eleven statements including the statement 'A', which was rated by the judges to illustrate the situation of zero participation, are considered by at least 1.9 per cent of the respondents to illustrate the situation where some degree of participation is involved. Most universal illustration of a participant situation is found to be reflected in the instance 'D', which is stated to describe the participant situation by as many as 85 6 per cent of the teacher and student respondents as a group followed by the instances/situations G,H,I, (J & K), C, F, B, E and A which are understood as instances of participant situations by 74.6, 73.2, 60 8, (20.1, 20 1), 19.1, 11 5, 8.1 and 1.9 per cent of the whole group of respondents, respectively. There are only four instances of situations D, G, H and I which are reported to describe participant situation by more than 50 per cent of the respondents as a group which suggest that for most respondents the main test of a participant situation is the provision or the availability of the consultancy situation whether or not the administrator gives effective consideration to the views and suggestions of the organization members, teachers and students. Majority of these respondents do not seem to consider that consultation on policy matters is preferable to consultation on programmes and activities of the organization. But they do accept the situation in which consultation on both policies and programmes of the organization is provided as a higher order participant situation than any other And, if the per cent distribution of respondents over the eleven instances is taken as a measure of the level/degree of a participant situation/organization, then the cooperative functioning of the administrator and members in the organization as members of a team on equal footing, as illustrated by the instance 'I' and which suggests of the members' ego-involvement and sense of belongingness to the organization that is held by Allport, Rao and Baker as the real test of a participation is, however, not considered so essential as a situation in which consultation takes place among organization members even though it is not on equal footing The data shows that the situation 'I' finds only the fourth place on an eleven-point scale, where the eleventh place indicates the state of no-participation. But on the whole there is not much difference between the judges' understanding of the concept of participation and that of the respondents, teachers and students in non-professional colleges. The variation in the per cent distribution of respondents over the eleven instances and the variation in the preferred order of the per cent distribution of the respondents over these instances as expected by the judges, i.e. I, J, K, H, D, C, G, E, B, F, and A yields a correlation value of .643, which is significant at .05 level as against the low and not significant correlation value of .51 that has been reported between the judges and the respondents from the professional colleges (teacher-training colleges) (Srivastava, 1975), thus cleary indicating that the teachers and students as a group in non-professional institutions of higher education are more aware of what a meaningful participant situation involves than those in the teacher-training institutions. The data shows that as against 1.9 per cent and 11.5 per cent of the respondents in non-professional institutions as many as 21.7 per cent and 41.1 per cent of the respondents in teacher-training institutions have checked those statements as describing participant situations which are respectively considered as instances of zero and near-zero participation by the judges. Two correlations (rho) have been calculated: (*i*) between pooled ratings (ranking/preference) of each statement/instance given by different respondent groups, and (*ii*) between per cent of each respondent group who checked the statements/instances of participation. The pooled rating or rank position for a statement represents the mean score for the statement obtained after changing the order of merit into numerical score in relation to the mean score of other statements thus obtained. The order of merit was converted into numerical score by the use of the formula 78, i.e. per cent position $100\left[\frac{R-.5}{N}\right]$ and with the help of Table 49 of Garrett's *Statistics in Psychology and Education.*

Unlike the finding reported in the study of student participation in the administration of teacher-training institutions (Srivastava, 1974) that a statement may though be considered as describing participant situation by a larger per cent of respondents but it may not be correspondingly assigned as high a rank position as the per cent distribution of respondents over the instance should suggest, in the present study it is observed that the respondents have in general assigned as high a rank position to the statements on their strength of describing the participant situation as the per cent distribution of respondents over these statements suggest. The correlation of .924 between the per cent distribution of respondents and the order of importance or preference they give to these statements is high and significant at 01 level.

The analysis of the understanding of the whole idea of participation in administration according to the two categories of respondent groups (teachers and students) gives a similar picture and there is practically no difference between the teachers' and students' understanding of what participation in administration means or involves, unlike the difference that was observed between them in the study of teacher-training institutions. However the teachers and students are found more near each other in their understanding of participation process than they both are near the judges The correlations, .953 and .968, between the teachers' and students' ranking of the instances used to illustrate participation process and between the per cent distribution of teachers and students over these instances, respectively, are high, positive and significant at .01 level but the correlations between the teachers' and judges' ranking of these instances and between their per cent distribution over these instances are .673 and .641 respectively, and both these are significant at .05 level. Similarly the correlation between the frequencies with which the judges and students check the statements as illustrations of participant situation is .607 which is significant at .05 level However, the students are relatively more close to the judges in their ranking of these instances as the correlation (.782) between their ranking of the instances is significant at .01 level. For more than 60 per cent of both teachers and students the instances D, G, H and I are interpreted as reflecting participant situations except the instance I which is checked by only 56 per cent of teacher respondents as against 65.1 per cent of student respondents (the judges' estimate of per cent distribution of both teacher and student respondents respectively, on the instance I is 100 per cent). Other instances are interpreted as demonstrating participant situation by the per cent respondents varying from 0.0 to 23.8 per cent. The instance 'A' is wholly rejected by the teachers as well as the judges as an instance of participation but is accepted as an instance of participation by 3.7 per cent of the student respondents. However, it is the least accepted instance followed by the instances E, B, F, C in both the respondent groups The popularity of the instances J and K among teachers and students is in the reverse order. While relatively more teachers prefer the instance J than prefer K, more students show their preference for the instance K than the instance J, which suggests that for teachers, participation in the determination of administrative policies is more important than the determination of plans, programmes and activities of the organization, but for students participation in administrative plans and programmes is preferable to participation in policy determination.

Further analysis of the data to find out whether the variation in (*i*) type of administrative control of the institution, e.g. government, private trust, university, (*ii*) type of institution, e g. for boys only, for girls only, for both boys and girls, and (*iii*) type of courses or the faculties, e.g. Arts, Science and Commerce make any difference in the understanding of the concept of participation and the processes involved in it, reveals that such variations do not influence the respondent teachers' and students' understanding of what participation means to them. Correlations (rho) obtained from the data in both between the per cent respondents from institutions under different administrative control, different types of institutions and the faculties who checked the statements as instances of participation and between the aggregate rank positions assigned to these instances by them suggest that the hypothesis of differential effect of these variations on the respondents' understanding of participation in administration should be totally rejected for in all cases the correlations are positive, high and significant. They exceed .735, the value required for the correlation to be significant at .01 level.

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Effect of Experience on Attitude towards Internal Assessment

A Follow-up Study

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THAT examinations of some type or other are a necessary evil cannot be over-emphasized, because they serve, though limpingly, many legitimate educational ends. But what type of examinations should we have is a question of topical importance today. There is no gainsaying the fact that the traditional examination system which we inherited from the British is highly defective making the teaching-learning process a drab, mechanical, and meaningless activity, where the student pays minimum attention to the studies and does little independent work throughout a large period of the course and crams desperately at the end of it for the final examination (Bloom, 1961). The different commissions or committees that considered the problem in depth recommended continuous internal evaluation by the concerned teachers to supplement or to replace the external examinations (University Education Commission, 1948 ; Secondary Education Commission, 1954 ; Education Commission, 1966).

Being undeniably a sounder system of evaluation, psychologically or pedagogically, internal assessment (IA) was introduced in several institutions at various levels of education, with real zeal. But the experience of these enthusiasts was too bitter which forced their fervour to cool down and they coolly reverted to the age-old, time-honoured traditional system, which in spite of all its lapses had the single advantage of being less subjective as the identity of the examinees was not known.

The Problem

However, the University Grants Commission is making a sincere effort to introduce the system from the postgraduate level, and a few universities have been selected to experiment upon the system. An investigation was conducted in one of these experimental universities where the attitude towards IA of 240 postgraduate students, equally distributed among the two sexes, the two faculties (arts and science) and the two years (I and II) was measured. The sample for the study was selected by a stratified random sampling procedure from six departments of arts and six departments of science faculties which were chosen at random from among the different departments in each faculty. It was found in that study, among other things, that the attitude of the first year students, who did not have much practical experience with IA (the investigation was conducted a few days before they took the first mid-semester examination) had a very highly favourable attitude towards the system while their counterparts in the second year who had more than an year's experience with the system had a neutral or negative attitude (Venkata Rami Reddy, 1978). Does this mean that experience with internal assessment changed the opinion of the students towards it? Or is the result peculiar to that sample of the first year and the second year students who served as subjects in that study? The answer to the above questions can be obtained by following up those 120 first-year students who participated in the study and measuring their attitude again when they were in the second year. The present investigation is intended for this purpose.

Hypothesis

Experience with internal assessment reduces the attitude of the students towards the system.

Sample

When the 120 students who served as subjects (Ss) in the earlier study were followed up in the second year, 14 students were not available as either they discontinued their studies or were absent continuously during the days when the present study was conducted, So the ultimate sample for this study was 206 students distributed among the two faculties and the two sexes as follows : Arts male : 27, Arts female : 26, Science male · 27, Science female : 26. The Ss were at the end of the fourth semester, having two years of practical experience with internal assessment.

Method

The same attitude scale developed by the author, which was used in the first investigation was used in this follow-up study also. It contains 40 statements (19 positive and 21 negative) selected from a pilot form containing 52 items arranged on a 5-point scale—strongly agree, agree, .. strongly disagree. The split-half reliability of the scale was 0.97 (N=100). Its content, construct and predictive validities have been established. (Venkata Rami Reddy, *a*)

The instrument was administered to the Ss in small groups in their respective departments as was done in the earlier study, by the same investigator under almost the same conditions.

Results and Discussion

The mean scores and SDs of the different sub-groups of Ss in the first study (when they were in the first semester), and in the second study (when they were in in the fourth semester) revealed that the mean scores of all the sub-groups in the first semester were far above the neutral point (120) indicating a highly favourable attitude towards IA. But the mean scores of the same students in the last semester were below the neutral point indicating a negative attitude towards the system.

This shows that there was considerable reduction in the attitude of the students towards internal assessment after undergoing it for two years. The *t*-test (correlated means, Garrett, 1973) was applied to find whether this reduction was statistically significant. The results showed that the change is significant at or above 0.05 level for all the sub-groups.

To one very specific question whether IA should be retained or abolished, 77 per cent of the Ss favoured its retention when they were in the first semester. But when they came to the last semester only 54 per cent preferred continuation of the new system. To another question whether IA should be for 25 per cent marks or 50 per cent of marks or 100 per cent of marks, among those who wanted IA to be continued, 34 per cent preferred it for 25 per cent of marks while 48 per cent and 18 per cent favoured it for 50 per cent and 100 per cent marks respectively, when they were in the first semester. In the follow-up study, however, as many as 51 per cent of the Ss preferred IA for 25 per cent of marks only, and 46 per cent opined that it should be for 50 per cent of marks while only 3 per cent wanted complete IA.

That there is a significant change in the attitude towards the negative in the students after they underwent the system shows that all is not well with it and that much is left to be desired in its implementation. Building the necessary infrastructure, in the form of supply of sufficient number of prescribed books, reduction of teacher-pupil ratio, adequate training for the teachers in modern methods of evaluation, should have been taken care of as the first and foremost step in introducing the system. This was what was revealed in informal discussions with teachers and students of the institution. Without these, it is the old, traditional type of teaching and testing (of course more frequently), minus external paper-setting and evaluation, thereby eliminating objectivity (the most important virtue of the traditional system) and giving scope for subjectivity of the teacher to play its role in assessment (Venkata Rami Reddy, 1977). An examination of the responses of the Ss for the different statements in the questionnaire showed that unworthy, subjective, non-academic considerations like caste, creed, region, religion, sex and servitude played their role in assessment (Venkata Rami Reddy, *b*). It is but natural that the students were not happy with the system and a vast majority of them wanted only partial internal assessment with an external examination at the end of the course to smoothen the lapses of the new system.

Conclusion

The hypothesis that 'experience with internal assessment reduces the attitude of the students towards the system' was accepted.

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Russian Language in Indian Schools

Some Problems in Textbook-preparation

M.P. Pande

Teaching of Foreign Language

The question of introducing the teaching of foreign languages in the Indian schools has attracted the attention of educationists and pedagogues from time to time. In fact, foreign languages like French and German were taught in some of the missionary and other schools located in metropolitan towns like Madras and Bombay even before independence. However, during the sixties, with the introduction of the three-language formula, the foreign languages occupied the place of the fourth language, and consequently, many of the schools discontinued the teaching of these foreign languages. As far as Russian language is concerned, up till now it has not been introduced as a subject in Indian schools although it has been taught in some schools as part of extra-curriculum activities. The latest curriculum prepared by the National Council of Educational Research and Training proposes that foreign languages could be introduced as optional courses in Classes IX and X of the secondary school and later on continued at the +2 stage. In view of these circumstances, we feel that time has come to think about the problems connected with the teaching of Russian in Indian schools and the preparation of necessary textbooks and teaching materials for this purpose.

The first question that has naturally to be answered is: Why introduce foreign languages in general and Russian in particular in the schools? In this connection, we would like to assert that the study of a foreign language makes a major and distinctive contribution to the educational experience of school children. The intrinsic merits of Russian language need no elaboration. With the pupil's linguistic aptitude, it will be a challenging course of study making varied intellectual demands similar to those made by Sanskrit. In fact, our experience has shown that the knowledge of Sanskrit and modern Indian languages is a great help in the study of Russian, because linguistically Indian languages are much closer to it in comparison with other European languages On the cultural front, Russian language studies have something unique to offer, since the USSR differs fundamentally from India in many ways Learning Russian language in schools would be a great advantage to the pupil as the importance of Russian is growing both in national and international fields. The knowledge of Russian may prove to be a useful adjunct to the pupil's later training and work.

Basic Course for Russian Language

Since foreign languages are offered as an optional course in the schools, it is obvious that only. a limited number of them will take up the study of these languages. The facilities available at the schools as well as the encouragement given by the teachers will, to a great extent, decide the number of students taking up the course in foreign languages In this connection, the teachers in schools should not forget that the study of foreign languages "constitutes a part of specialized education, not general education". Therefore, as suggested by Peter F. Oliva, "foreign language instructions should be geared to students of average as well as above average intelligence".[1] It would thus be clear that all the students should not be encouraged to take up courses in foreign languages. This is particularly true about students who are likely to discontinue their studies after Class X. Students who are likely to continue their study of foreign languages in the colleges and who show special interest in learning languages and are good in their mother-tongue as well as English should be encouraged to take up the study of foreign languages.

This is specially of great importance with reference to the present suggestion of introducing Russian language in the schools. It is proposed to start the teaching of foreign language in Class IX and continue for four years. The total number of periods allotted per week is only two of 40 minutes' duration. Thus, in the course of four years, the pupil will have in all a maximum of 300 academic hours which is just enough for a basic course in the language. The pupil will have thus to continue his studies in the colleges before he reaches the take-off stage after which he can continue with programmes of self-education in the field of the foreign language.

Textbooks for Teaching Russian

At present no books for teaching Russian to pupils in the Indian schools are available in the market. Even for the part-time courses run by the universities, there is no textbook meant specifically for Indian students. We have been throughout depending on the textbooks prepared in the Soviet Union for English-speaking foreign students. These books have been found to be inadequate for teaching Russian effectively for the college students and can in no case be used for teaching Russian in the schools. It is not our pupose to go into the deficiencies of these textbooks, but all the same we must stress that psychologically these books are meant for adult students and their contents : the number of lexical items introduced in every lesson, the sequence of grammatical items, etc. are beyond the comprehension of our school children. Since most of these books have been written for foreigners who study the language in the Soviet Union, the lessons contain themes connected with the life in USSR which are very often incomprehensible for the Indian school children.

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[1] Peter F. Oliva, *The Teaching of Foreign Language*, Prentice-Hall, Inc., N.J , 1969, pp. 14-15

The Teaching Material

One of the important aspects of teaching Russian language in the Indian schools will be connected with the fact that the subject is not a compulsory one and in the system of the student's priorities it occupies a very low place. As it is, the student at the secondary stage is burdened with many subjects and has a tendency to neglect optional subjects. This is purely a psychological aspect and a teacher and the writer of the book for school children will have to take this into account. In this connection the material selected for the textbook could be of vital importance. The teaching material should be such as to make the process of teaching interesting and lively. If situations from the everyday life of the pupil are taken and the texts are based on them, the children may be encouraged to use the words and sentences introduced in the classroom afterwards while talking to other friends outside the classroom. It would thus be obvious that careful planning of the language lessons is essential.

The primary requisite of any planned approach to the teaching of Russian in the Indian schools will be the determination of the aims and objectives of the course. In this regard, first and foremost, we must ensure that the language course should in itself constitute a microsystem. As we have already mentioned, in the course of the four years of study the total contact hours would not exceed approximately 300 and an attempt should be made to give the pupil the possibility of completely mastering the system of Russian phonetics and graphics in the course of this period of study. The amount of lexico-grammatical units to be introduced must be very carefully selected and it should aim at teaching the elementary forms of spoken and written Russian. The material to be introduced should be enough to teach the student the elementary skills of communication, i e. listening, speaking, reading and writing

Complex Textbooks

The question whether it would be advisable to start with a preliminary introductory course of phonetics (oral) was analysed very carefully. Practical considerations and time limitations dictate that it would not be feasible to allot more than 10 hours for the introduction of sounds and letters. It was, therefore, concluded that it might be advisable to simultaneously introduce the elements of reading and writing right from the beginning. However, it is advisable to first introduce sounds orally and only later on the graphic forms. This is based on the principle that only that can be read which has already been mastered orally. In this case, we have tried to combine in one the two sub-stages in teaching which are used in the USSR national schools, i.e. the sub-stages which may be defined as oral introduction of sounds and introduction of letters. There is no doubt that the time of 10 hours set apart for this is very little, but in the existing circumstances, it cannot be increased. It would thus be obvious that the textbook for the schools will have to be a complex one right from the first lesson in which material for reading will be combined with phonetic practice and grammatical exercises.

Linguistic Teaching Approach

The planning and presentation of teaching material is greatly influenced by the findings of applied linguistics. While preparing a textbook for Indian schools, it is imperative that a linguistic teaching approach should be adopted. Linguodidactics very clearly bring out the fact that the skills and habits of spoken activity in a foreign language can be worked out on the basis of communicative and situational motivation. That is why as we said earlier, it is proposed not to introduce any non-equivalent lexis which is basically culture-bound during the first year of language teaching, i.e. the beginning stage. Care should be taken to use known proper nouns like Mina and Madan instead of Russian names like Ivan and Erina. Similarly, all the situations should be Indian.

All this does not, of course, mean that what is advocated here is complete absence of the cultural element and the teaching of Russian in complete alienation with the elements of culture and civilization of USSR. Even in the textbook for the first year, already Russian characters have been introduced and it is proposed to introduce more and more situations from the second year textbook onwards. The amount of non-equivalent lexis will also increase proportionately.

Care must also be taken to see that a lot of practice in the use of words and models and typical situations is given. This is based on the well-known dictum of linguistics that teaching should be based on "learning of constructions of patterns in the study of the value of building stones through the process of transformation and substitution". Along with the fact that "the rule can reinforce the student's behaviour, but it cannot establish it".[2] In the textbook for Indian students, the rules should be given only in the revision lessons, which are meant purely for reinforcement of the material already learnt by the student earlier by the method of deduction.

Methodology

The question of proper selection of the methodology of teaching Russian in the Indian schools is a very complex one and needs detailed research and analysis. However, it would not be wrong to state that the direct method cannot be used in the teaching of Russian in Indian schools. We would like to propose the utilization of combined method with occasional use of the mother-tongue or a link language as an economy measure. At the school level the use of pictures provides "very economic non-verbal clue for a structure"[3] and at the same time help in sustaining the pupil's interest. An attempt should, therefore, be made to use this aid in the textbook to the maximum possible extent. As far as the proper method of teaching is concerned, it must not be forgotten that every teacher has to do his own planning before using these lessons. He will have to make necessary changes in accordance with the needs of classes or sometimes even particular students. Although a teacher may use different approaches, yet there is no justification for teaching by the traditional grammar translation method which lays special stress on the reading skill only.

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[2] R.L. Politzer, *Teaching Foreign Language* London; 1965, pp. 10-11

[3] *Ibid.*, p. 14

Russian Language and the Mother-tongue

While giving up the approach of translation at the same time, a teacher or a textbook writer should not go to the other extreme, completely neglecting the peculiarities of the mother-tongue of the student. In fact, a thorough contrastive analysis of the Russian language with the mother-tongue of the student is an absolute must for preparing a textbook in any foreign language. Such an analysis gives the textbook writer a clear insight into the course which lies ahead of him and helps him in making the lessons more purposeful and easily comprehensible by the pupil A comparative and contrastive analysis of Russian and Hindi sound systems shows that for the purpose of our textbook, the Russian sounds could easily be divided into three groups : those present in Hindi, those absent in Hindi and sounds present in Hindi but not completely corresponding to the Russian sounds. Even among the last two groups of sounds, some could be marked out as being specially difficult for Indian students. A textbook writer should keep in view the findings of such contrastive typological analyses while introducing various Russian sounds to Indian students. Practice shows that it is not always possible to introduce the Russian sounds according to the principle of 'from known to unknown' since sounds cannot be introduced in isolation and have to be given in meaningful sentences. Therefore, even while preparing the first unit consisting of 10 lessons, in which the sounds and letters have to be introduced, care should be taken to keep in view these findings. However, sometimes the author is forced to introduce some difficult sounds at the earlier stage in order to produce meaningful sentences. But all the same, specially difficult sounds like 'zh' and hard and soft consonants should be introduced later.

Vocabulary

One of the most important problems faced by any textbook writer is that of the selection of the minimum vocabulary which has to be introduced in a textbook. There is no doubt that the frequency counts and dictionaries of minimum vocabulary are of great use. But if a textbook is based on the principle of teaching the foreign language by using typical situations it is not always possible to strictly limit oneself to the minimum vocabulary selected on the basis of strict principles. The frequency of the lexis in the micro-language of the pupil is a very good principle for the selection of the words to be used in a particular textbook. This situational thematic vocabulary will depend on various factors like the age of the pupil, the class in which he is studying, whether he is an urban or a rural child, the State in which the school is situated, etc. However, since our aim is to produce a textbook for the whole of India, it would be a good idea to use only such situations which would be of a national character and will not have any peculiar regional colouring. The maximum number of lexical items to be introduced in the whole micro-system consisting of four years of teaching should not exceed 1,500 words. Accordingly, the number of words to be introduced every year would be between 350 and 400. Since the total number of periods in a year is expected to be around 80, this vocabulary would be in consonance with the principle of introducing not more than five words in every period. As started earlier, care must be taken to avoid non-equivalent lexis during the first year of study and the total number of words to be introduced during this year should contain about 300 from the most frequent first 400 words.

Conclusion

If the textbook of Russian language for the school is based on the principles enumerated above and after it has been written it is properly vetted, tried in actual classroom situations and subsequently revised, it may be possible to produce a suitable tool for the introductory courses in Russian language. One of the basic aims of these lessons should be to make the task of teaching Russian in Indian schools as interesting as possible. But in this, more than the textbook itself the ingenuity and skill of the teacher, will be to a great extent the deciding factors. In fact, the success or failure of the experiment of introducing Russian at the school level in India will to a large extent depend on our capacity to produce and train the right type of teachers for this purpose. However, this is a topic requiring detailed study and analysis.

In conclusion, it may again be asserted that the time has come to seriously take up the problems connected with the teaching of Russian to Indian schools and the preparation of necessary textbooks and other teaching aids for this purpose. □

Physics Syllabus for the Non-Physicists

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Introduction

THERE have been two major types of changes in the writing of physics textbooks in the last twenty or thirty years. First, new topics which formerly belonged to the category of research are being included in the physics syllabus, e.g. high energy physics and lazer physics have become a part of even the B.Sc syllabus. Secondly, new and imaginative method of teaching the subject are being developed which emphasize the fundamental unity of different topics and which aim at a better appreciation of the subject by the students. In the latter category, one may mention the Feynmann and Berkeley series of physics books for the college level. They have been written in a beautiful and unorthodox manner and reveal a unity and inter-relationship in physics which is not generally found in ordinary textbooks.

This article is confined only to the school level. For this level, we may mention the Physical Science Study Committee (PSSC) and Nuffield Science Teaching projects which represent two different approaches to science teaching. The PSSC project was undertaken by a group of university and secondary school physics teachers in 1956 to develop an improved beginning physics course. The Nuffield projects was started in 1962 with a view "to present science in a lively, exciting, intelligent way".

The above projects were aimed at developing new material for the benefit of students and teachers to improve physics instruction in schools. They also devised new experiments to go along with certain topics and to teach the underlying principles better. For example, the PSSC has developed the 'ticker-timer' for doing 'experiments on velocity and acceleration and the ripple tank' for demonstrating wave phenomena. The Nuffield series of books have also devised some interesting and innovative type of experiments. In fact, they study theoretical concepts through the medium of experiments and thereby follow the principle of 'learning by doing'.

These projects have inspired other countries into similar efforts. Many south-east Asian countries like Malaysia, the Philippines, Sri Lanka and others have benefited from them and have produced similar materials for fulfilling their own specific needs Others, like Pakistan and Afghanistan are in the process of modifying and improving their textbooks on similar lines.

In India also, the above projects have had considerable impact in reshaping our school books. The Regional College of Education, Mysore, has produced physics resource material for teachers which is similar to the PSSC book It has suggested many activities which go along with the theoretical topics generally covered in the higher secondary school syllabus. Other physics books brought out in India owe some inspiration to PSSC and Nuffield texts. Similarly, many worksheets and workbooks to better appreciate the basic principles of the subject have been prepared by some school and college teachers in India.

The inspiration has not necessarily been a direct one in the sense that some physics topics have been treated in the same manner. Rather, the approach has been similar. A scientific basis at curriculum-framing has been adopted. School teachers have been associated with both the writing of the books as well as with subsequent try-outs in the school. Efforts have been made to train many teachers in summer institutes.

While welcoming these efforts for improving physics education at the school level, one must not forget that they are mainly aimed at the future scientist, particularly, the future physicist. In other words, these books provide excellent scope for learning some basic concepts of physics which will be useful for a more rigorous learning of the subject at the college and university levels They fulfil the needs of a specialist in science. They generally do not have in mind, the ordinary student who will either not go to the college at all or who will not take up science at the college level. Of those who pass Class X, less than 10 per cent will become future scientists. For the remaining 90 per cent the reasons of learning psysics are very much different We must keep this whelming percentage of non-physicist in mind while framing the psysics curriculum.

Objectives of Teaching Physics to a Non-Physicist

The objectives of teaching physics in Classes XI and XII are entirely different from those of teaching students of Classes IX and X. Most of the students studying in higher secondary classes are expected to take up science in the college or the university. For students of lower secondary, science is a compulsory subject in the new pattern of education. A large majority of these students will be non-scientists. For the purpose of this article, we shall consider only the non-physicists.

One of the objectives of science teaching, no doubt, should be to impart some training in the methods of science. A physics course should also teach some basic topics of physics. But the overriding criteria for selection of any topic for lower secondary classes should be that it is relevant to the everyday experiences of an ordinary student. It should also enable him to face life in which he sees and makes use of many applications of science. For example, electrical appliances are becoming increasingly common not only in the cities but also in rural regions Thus a physics course should certainly include something about the phenomenon of electricity and electrical appliances

By this yardstick, any topic which will not have some use in the daily life of an ordinary citizen, would have to be discarded, for a general level course. Many modern topics like atomic physics, nuclear physics which would be interesting from a physicists point of view and would form an important part in the curriculum of a building scientist, would, in this scheme of things, not merit a place, because its relevance for non-physicist is rather remote.

There are other topics which are not usually included in a traditional physics course, but which may be related to the everyday needs of an individual or a community. A judicious selection of such topics would have to be made.

Analysing the Present Physics Syllabus

If one examines the present physics syllabus for Classes IX and X, we find that it is divided into mechanics, elasticity, sound, light, magnetism, electricity, etc. This division is of historical origin. It also implies that for a well rounded physicist, all these topics are necessary. This is a correct assumption in the case of a future specialist in physics, but it is of doubtful validity for the purposes of a non-physicist.

If there is one thing common in different textbooks of physics, it seems that they are all aimed at future scientists Consider the present NCERT physics book for Classes IX and X. In its chapter on 'motion' it includes the subject of vectors. Nowhere else in the remaining chapters is any use made of vectors. Even if they were subsequently used, the question remains : What relevance would the concept of vectors have for a non-physicist ?

Again, consider the chapter on 'elasticity'. Many details of elasticity have been given. Difference between elasticity and plasticity, the yield point, ductile and malleable substances, all these have been included in the chapter. First of all, it is difficult for even the brightest student of Class IX or X to understand so many concepts. Secondly, from the point of view of their utility, these concepts are unnecessary. In the chapter on 'magnetism,' we may question the usefulness of topics like the direction of the magnetic field when a current passes through a conductor.

This is not to suggest that magnetism should be dropped altogether But a detailed analysis should be made before it is included in a book for non-physicists. No topic should be included just because it has been traditional to do so. Every topic must be critically examined to test whether (*i*) it is comprehensible to an ordinary student who need not have a special "flair" for science, and (*ii*) it is relevant to his everyday life in later years.

Suggestions

Many topics included in the existing books may have to be deleted Certain topics not included in the present books may also be added. For instance, for most rural people, a study of soil physics may be quite interesting and informative. Some other topics like biophysics, study of oceans, etc may also be found to be acceptable. Although nuclear physics as such may not be taught, some ideas of the atomic bomb and nuclear energy may be useful because they are so typical in today's world.

The above topics are only suggestive.

My purpose is not to cite specific portions for deletion or inclusion—a considerable amount of research and debate would be needed to arrive at an acceptable physics curriculum. My purpose is only to emphasize the special needs of the non-physicists which the present syllabus does not meet.

The Role of Teacher

Any changes which are incorporated would have to be done gradually, otherwise the teacher would not be able to effectively teach the new syllabus. The teachers would have to be simultaneously trained in the philosophy of the new curriculum, as well as in certain new topics which may be included. One must also remember that in certain schools, science courses are being taught by non-science teachers. This always creates problems in teaching any type of science course But the proposed new course which is meant for the non-physicists would perhaps pose fewer problems because it will be based more on the environment and will place less emphasis on a rigorous training of physics which only a trained graduate or postgraduate teacher may be expected to possess.

Training of Future Physicists

One may raise the objection against the proposed syllabus that by deletion of certain traditional topics of physics and by de-emphasizing others, the interests of the future scientists, however few in numbers, will be harmed. This fear, in my opinion, is not justified. By giving a broad basis to the subject and by making it relevant to the interests of the general student, the proposed syllabus will make a more formal and rigorous training of physics in higher secondary and college level stages easier.

For having a match between the lower secondary and higher secondary stages, some adjustment will be necessary in the curriculum. Some people suggest that an equal compromise should be made by both the stages. Although it seems a fair suggestion, it is not in the interest of the general student because that would mean upgarding in his syllabus. The higher secondary stage should accept the student of the lower secondary as he is and prepare the physics curriculum on that basis.

In any case, the purposes of a general level course which is required for students of Class IX and X are different from those of a specialized course in physics meant for students of Classes XI and XII. The distinction between the two should be made clear At present this is not often so.

Conclusion

The purpose of this article is to clearly define the objectives of a physics course meant for non-physicists. Since an overwhelming number of students who pass Class X will not become future scientists, we should aim at the non-physicist rather than the specialist in framing the physics syllabus. The criteria for designing the syllabus have been discussed. A few suggestions for deletion and inclusion in the new course have been proposed. These changes if properly implemented need not burden the teachers They will also not harm the interests of minority of those students who will subsequently specialize in physics. □

Curriculum of Non-Formal Education for the Age-Group 6-14

A Point of View

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WE have constitutional obligation to provide free and compulsory education to all children of the age-group 6-14 years. By the end of 14 years a child should complete elementary education but we have not been able to reach the target neither in quantity nor in quality. We have neither been able to enrol all the children nor could retain them for education. There are many factors of our failing, one of which is the rigidity of the formal system. A large percentage of children belonging to economically backward section of our society could not get education due to financial handicaps. There are certain communities who have a prejudice against education since it does not relate to their well-being. There are also social difficulties among certain communities that they do not like their daughters to receive education with boys because they are unable to attend the time-consuming process of formal education and its shortcomings such as :

- —unsuitability of time;
- —apathetic and disinterested attitude of the teacher;
- —non-involvement of the community;
- —rigidity in terms of children; entry in the school, fixed time-table, course content, inspection, examination, etc.

Keeping in view the shortcomings and other financial factors (if we want to carry the formal system of education to all children we will need nearly 3½ times more fund than at present), formal education could enrol only one-third of the children. The Government of India re-ordered the priorities and have suggested an alternative approach to fulfil the constitutional obligation.

The part-time non-formal system of education has been recommended to cater to the needs of the deprived children. The Planning Commission has suggested as follows :

> Non-formal part-time education at elementary stage :
>
> 1 This scheme will be implemented in the existing educational and other institutions in selected blocks with a view to stimulating action at the State Government level and to evolving experimental schemes Based on the experience of these pilot experimental schemes, the programme would be developed on a mass scale for the subsequent five-year plans.
>
> 2 This scheme will be implemented only in the educationally backward states especially in those blocks where integrated area development plans are likely to be taken up. In the selected blocks/areas voluntary organizations should also be stimulated to take up this work.

Non-formal education though sounds differently is an organized programme of education. It envisages all the possible remedies for the difficulties imposed by the formal system. For example, the approach in teaching/learning is neither rigid nor time-bound or rigorous in following the norms, such as age-group, subject-content, methodology, place, and timings. Hence, one can frame as many programmes as there are situations and needs. Hence we have to restrict ourselves and plan a suitable model of curriculum.

Curriculum

There are many sources to get ideas for designing a curriculum. As such curriculum development has to be rational and scientific rather than a rule-of-the-thumb procedure. It needs further gathering data about needs of the learner, learning processes and the nature in which specific characteristics and unique contributions of the subjects selected and the physical facilities available. Facts and ideas from the sources do not automatically yield a platform for curriculum. Certain considerations, choices of values and philosophies will make some developments of greater worth than others.

If one conceives of curriculum development as a task requiring orderly thinking, one needs to examine both the order in which the decisions are made and the way in which they are made to make sure that all relevant considerations are brought to bear on these decisions. One of the orders may be as :

——formation of objectives
——selection of content
——organization of learning experience
——methodology
——ways and means of evaluation.

Each pattern of curriculum is based on the sequencing of a set of long-range objectives, defining each objective in terms of behavioural objectives, selection of content material approach to an appropriate methodology. Keeping in view the limited time, teachers' capacity and facilities available, number of learners in a given time, guidance and supervision, evaluation, etc. the curriculum also visualizes the continuity and integration among various ingredients evolved for the whole scheme

Formation of Objectives

Considering all aspects of non-formal education such as different age-groups of the children, needs of the learners, time factor at the disposal, the problem of single teacher, his capacity to organize classes and the facilities available, the most appropriate and attainable objectives have to be evolved. The following are the proposed objectives :

- (*i*) To develop functional literacy
- (*ii*) To develop functional numeracy
- (*iii*) To develop functional technoracy
- (*iv*) To develop skills, habits and attitudes for healthy living
- (*v*) To inculcate scientific attitude
- (*vi*) To enjoy worlds of art and music
- (*vii*) To appreciate and respect personal and cultural differences
- (*viii*) To provide opportunity for entry in the mainstream (for curious and talented)

Selection of Content

To achieve these objectives we will have to select some content on which the instructions will base. There are many ways of selecting the content, such as subject-wise, need-wise, community-wise and activity-wise. We may consider some of them and select a suitable one meeting the needs of non-formal education.

Subject-wise Organization

This is the most prevailing form of organizing a curriculum. This type of organization may be observed in the more modern types of curriculum. The chief defence of this organization is that different subjects constitute logical and effective method of organizing the teaching of new knowledge and, therefore, it constitutes an effective method of learning. But there are some limitations. It requires formal education and rigidity of curriculum, finance and other infrastructures. It requires to be implemented in set time hours. Moreover, subject-areas are also growing and changing day by day. Ultimately, it ends in the teaching of subject and the books and the child becomes a secondary factor

Situation-wise Organizations

Considering all the aspects of non-formal system—varying age, needs, time available, explosion of knowledge, a single teacher to manage the show, etc. we may consider the possibilities of having another type of curriculum: a 'situational curriculum', i e. the curriculum based on situations.

Some of the chief characteristics of a situational curriculum are as follows :

1. Situations are based on day-to-day experiences of life This provides involvement to the learner.
2 It directly deals with the problems of the learner.
3. It sustains the interest of the learner
4. It provides variety of topics related to day-to-day life of the learner.
5. The learner knows well what he is learning and can easily react to it.
6. The learner knows well how the learning is helping him in enhancing his knowledge and experiences.
7. The rigidity of formal education being absent in this curriculum, the learner feels suitably adjusted in teaching and learning situations.
8. It provides free hand to creative teacher to plan a suitable teaching programme for the learners.
9. It has an easy scope of modi-

fication on the basis of past experience of the teachers

10. The learning outcomes in the form of behavioural changes are more distinct and apparent. Therefore this provides base for an unbiased evaluation of the learner.
11. A teacher, following the situational curriculum is able to handle a heterogeneous group of the children, varying in age, ability and knowledge.

TIME ALLOCATION

(Duration 2½ hours)

(*i*)	Developing language skills and different behaviours of language, viz listening, speaking, reading and writing.	½ hour
(*ii*)	Developing mathematical skills and teaching the four fundamentals of Arithmetic, and measurements, etc	½ hour
(*iii*)	General knowledge pertaining to environment—society and nature	½ hour
(*iv*)	Activities—group/individual pertaining to art, and work experience, and science games	½ hour
(*v*)	Aesthetic activities—dance, drama, music, etc. and organizational and administrative work	½ hours
	Total	2½ hours

Teacher requirement· For this course we would require qualified, experienced and seasoned teachers, dedicated to their profession and prepared to face the challenge of educating the masses.

Orientation Course for Teachers

The success of the programme depends upon the resourcefulness of the teacher of the non-formal education An orientation course for the teachers to be engaged in this task is a must. Duration of the course should be 4-5 weeks. This will include the following subjects and will be teamed with the purposes of the project of non-formal education · (*i*) language, (*ii*) mathematics, (*iii*) general knowledge pertaining to environment—social and natural, (*iv*) activities—group/individual pertaining to art and work-experience and science games, and (*v*) aesthetic activities—dance, drama, music, etc. and organizational and administrative work.

Methodology

The main objective of non-formal education is to provide necessary education to those who on account of one reason or the other do not afford to get formal education. It is for all such children, boys and girls, who want to enjoy the romance of reading and writing. But to achieve the desired results we will have to keep away from all sorts of rigidities of formal education Only a change in the name of the type of education will not do. We will have to change the ongoing old methods of teaching which is very much examination-ridden.

Since there would be a vast variety of the clientele, we cannot follow the single method of teaching. We will have to give a free hand to the teacher in organizing his teaching work He will decide his own method according to the need and situation of his clientele. What is more important for him to know is what and how much of a selected topic should be taught to the children. Being the only teacher to handle a heterogeneous group, he will have to evolve devices to keep the children engaged in learning. In this system the end-product is more a concern of the administrators and supervisors than the means through which it is obtained. This will have to be left to the teacher alone.

There are many non-formal ways of teaching. You describe a story chart in an attractive way with proper modulation, intonation and stress. This will provide a training in perception, and develop the listening comprehension of the children. You can ask a number of questions and stimulate his thinking. This will develop his power of expression. You can teach a number of important words—their sound, their form and their meaning. You can ask the child to relate a similar story You can dramatize the story. This all is a non-formal method of teaching. This is much more effective than formal teaching. Such teaching cannot go over the heads of the children. This can be applied to the teaching of different subject areas.

More light on the methodology to be adopted in this system will be thrown when it is discussed in the training programme for the teachers.

Evaluation

As said earlier, the non-formal system of education is much more child-centred. This helps the teacher to watch his behaviour minutely. What changes are taking place in the children as a result of teaching the teacher cannot miss them. He has an opportunity to evaluate his teaching also. He can easily find out the difficulties of the children and develop remedial programme

Periodical tests and examinations are also necessary to evaluate the achievement of the children. But it should not be rigid. Oral examinations will be more useful to find out the strength and weakness of the children You can have unit tests to allow the children to shift to the next unit You can also have supplementary tests and examinations for those who could not attend the previous tests in time. It is important for a teacher to find out whether or not all that he has taught has been transmitted well to the children. Therefore, he will have to evaluate his programme in day-to-day teaching also and have a mental note of the progress of the individual child. Sample tests will be provided by the planners of the curriculum for the guidance of the teacher. ☐

Educational News

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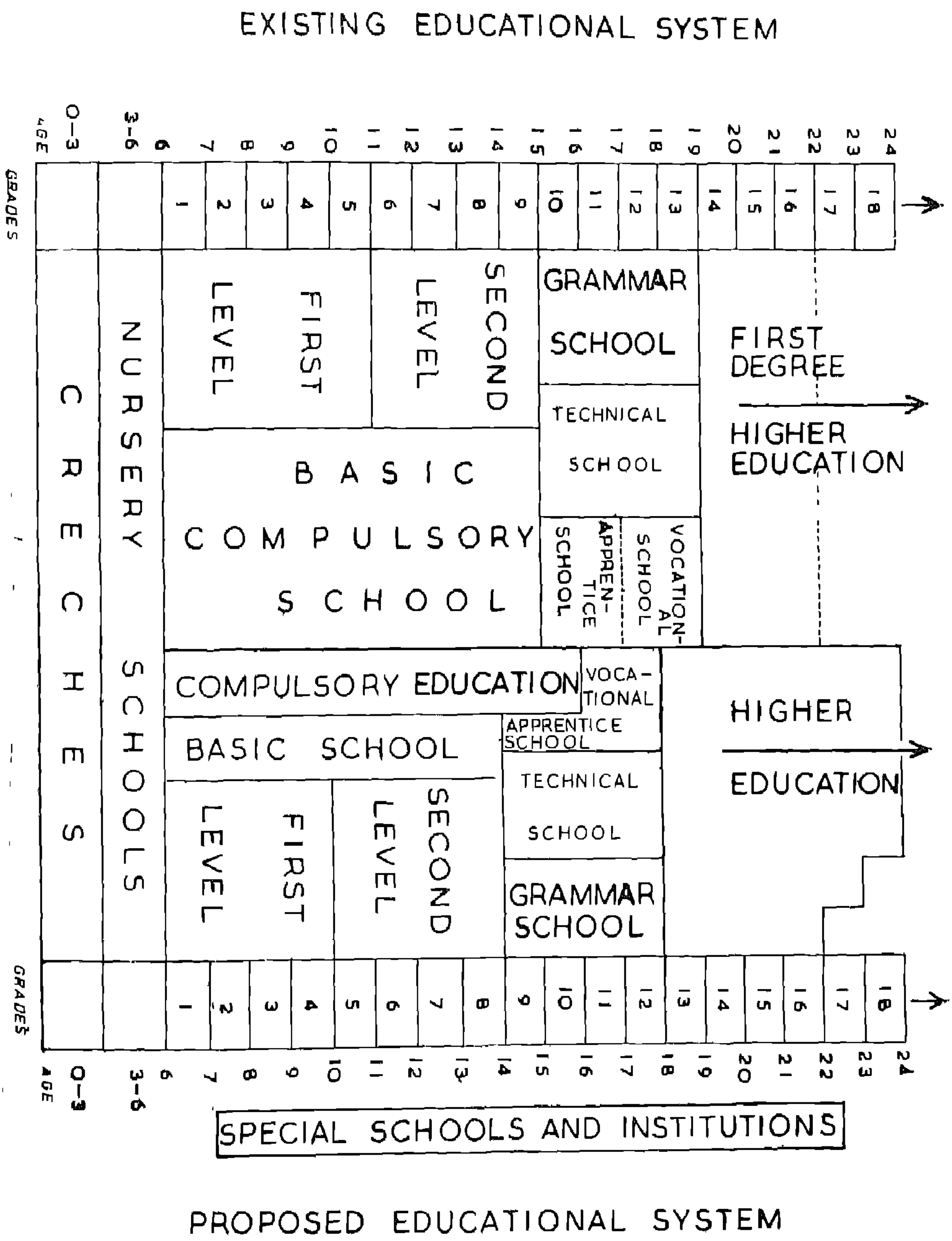
Educational System in Czechoslovakia

[Shri J.C. Goyal, Reader, NCERT, who recently visited Czechoslovakia under the Indo-Czechoslovakia Cultural Exchange Programme makes the following report on the system of education in that country.]

EDUCATION in CSSR is a State subject but it is nationalized. There are no private or public schools as we have in India. The educational system is claimed to have four basic principles: democratic character of the system, unified school system, polytechnical character of education and free education for all.

It is said to be democratic in character because cooperation of the family, the State, the national committees, economic organizations, enterprises and other institutions in the society is obtained by the system. It guarantees equality of access to education for all, irrespective of religion, sex, social origin and nationality. It has a uniform character because all children attend some type of schools which enable further university education. There is no difference in the curricula, textbooks and other programmes of schools throughout the country. The educational system is polytechnical in nature as technical education is a part of the system at all levels. All schools and institutions provide the students with theoretical knowledge of modern production techniques and practical work habits. Free education at the school level for all is based on the elementary right of all citizens of CSSR.

The educational ladder of the system consists of the nursery, basic, secondary and higher education stages as shown in the diagram on the next page



EXISTING EDUCATIONAL SYSTEM

PROPOSED EDUCATIONAL SYSTEM

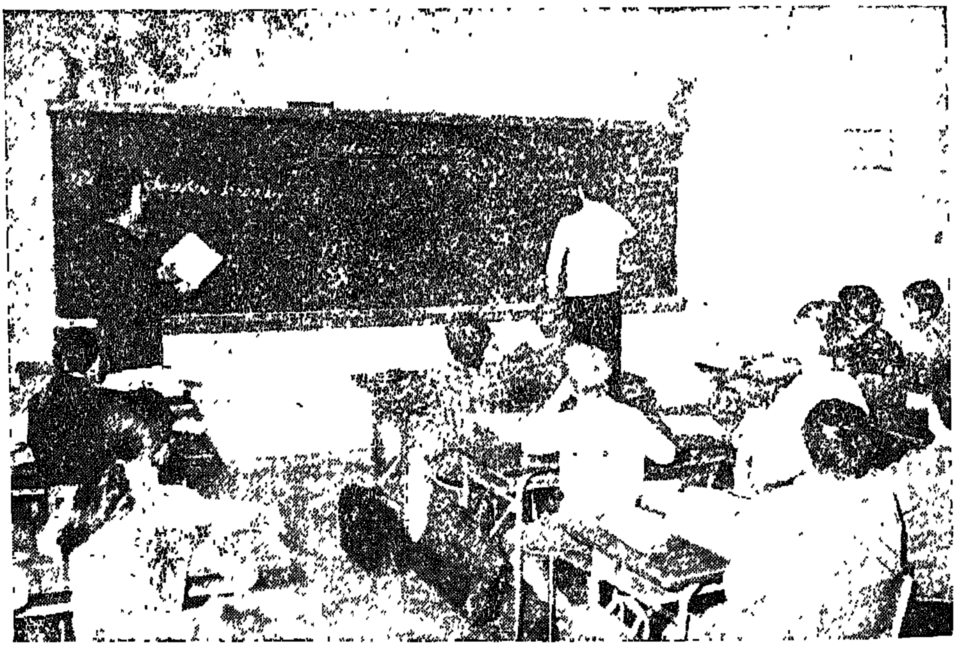
Educational system in Czechoslovakia

Pre-School Education

The pre-school education is provided to the children in the age-group $2\frac{1}{2}$-6 years in creches and nursery schools. Although it is not compulsory for all children, facilities are being provided to a large number of them. Children in this age-group are helped in developing their speech, knowledge, practical skills, interest in play, work and learning. They are also prepared to become better adjusted in the basic school Another purpose of providing creches and nursery schools is to enable the mothers of young children to engage themselves in whole-time work. The facility of pre-school education is provided through day-long and week-long stays by children in creches and nursery schools, half-day attendance at nursery schools and regular education of the parents of children.

Basic Education

The basic or elementary school in CSSR is a nine-year school for the children in the age-group of 6 to 15 years. Attendance at the basic school is compulsory for all children in this age-group. Its purpose is to educate pupils as the future citizens of a Socialist State, to give them a correct understanding of their duties and rights and give them the elementary knowledge of the scientific world. The basic school at present consists of two levels The first level includes Grades I to V and the second level Grades VI to IX. At the first level, teaching of the mother-tongue and mathematics is considered important to develop logical thinking among children. This is combined with the teaching of history, geography, civics, nature study, training in work, music, art and physical education. At the second level of the basic school, the system provides, in addition to the knowledge of subjects at the first level, some general technical education, ideological and political education in the spirit



Teaching a lesson in Class VIII of a compulsory nine-year school in Bratislava

Students of Special Technical School for Agriculture working on the field at Modra

of Marxism-Leninism, the sense of collective works and education in social responsibilities of pupils.

Russian language is compulsory for all pupils from Grade IV. The other foreign languages like English, German and French are also offered in some schools from Grade III onwards

The work training in Grades I to V consists generally of paper-cutting, clay-modelling, handling of wood and metal tools, etc. At the second level of the elementary school, i.e. in Grades VI to IX there is provision of workshop practice for four hours a week. It provides training in fundamentals of electricity, agriculture, wood-work, metal-work and cooking and care of children for girls. Laboratory work for two periods a week in science subjects is also provided. There are special classes for weak and gifted children in some schools

Secondary Education

The secondary school education in CSSR is a four-year programme for the pupils in the age-group of sixteen to twenty years. There are three types of secondary schools. One type is known as grammar schools. The main purpose of these schools is to prepare students for higher education and to enhance their ideological and political education based on the fundamentals of Marxism-Leninism and to acquaint them with the movement of international communists and workers headed by the Soviet Union for world peace and social progress.

The curriculum of these schools includes compulsory teaching of mathematics, sciences, social sciences, languages, physical education, sports and para-military education. The specialized component of the curriculum includes the fundamentals of production and preparation of students for specialized university and college education. About 17 per cent of the secondary school children attend the four-year grammar schools. Students in these schools are admitted on a selective basis.

The other type of secondary schools is the technical schools. Duration of the secondary technical schools is also four years These schools admit students in various areas of technical education and prepare them for vocations in technical fields. After this, students may continue their education in a university in the particular technical branch of specialization. Education in secondary technical schools is provided in all fields of the study like civil, mechanical, electrical, automobile, chemical engineering, metallurgy, mining, transport, communications, agriculture, food, health, economics, teacher-training, art, etc. There are about 150 such fields of study offered by 20 types of technical schools in the country. Students at secondary technical schools have to study general educational subjects also like social sciences, mathematics and natural sciences. The farms, factories and other enterprises provide for practical training of students in the technical courses. According to the statistical figures for 1975-76, about 40 per cent of the students join the secondary technical schools.

The third type of schools at the secondary level is the vocational/apprentice schools. It is the mainstream in secondary education. About 43 per cent of secondary school pupils attend these schools. Such schools are established by the Government, factories, enterprises and associations. The pupils who are not able to go either to grammar schools or to the secondary technical schools join the apprentice schools. They get two to four years of training as skilled workers according to the nature of a specific vocation or trade. The curriculum in the apprentice schools consists of more practical work and less of theoretical education. These students develop skills in certain vocations and are employed by the factories or other such establishments as skilled workers General subjects like social sciences, mathematics and natural sciences are also taught to them.

Special Schools

There are special schools for children with physical and mental disabilities like deaf and dumb, blind and retarded. Similarly special classes are arranged for the maladjusted children and those suffering from reading, speech or other such defects. The methods of teaching in these schools are different and suited to the needs of individual child. The studies are combined with proper work-training.

The special interests of children are detected as early as possible and arrangements are made to train them in special schools for science, technology, arts, sports, millitary training, etc. in order to encourage special talents of pupils. The school clubs, houses of young pioneers and youth, people's schools of arts and languages with facilities of libraries, workshops, sports and games, etc. also assist in the alround development of such pupils.

Education of Teachers

All teacher-training programmes are of four years' duration. Two years are generally devoted to subject-teaching and two years to the study of pedagogy, philosophy and psychology. A unique feature of the system is that about two years of pedagogical studies must be taken by all teachers including university teachers and teachers of technical subjects like art, music, engineering, medical and others. The various kinds of teacher-training programmes are to prepare teachers for nursery schools, the first level of the basic school, general subjects like social and natural sciences and humanities, technical subjects like engineering, medicine, agriculture, economics, practical subjects, languages, art and for special schools for the handicaped.

Institutes of Pedagogy

There are a few regional institutes and one Central Institute of Pedagogy in each of the Czech and Slovak Republics The activities and functions of these institutes are to prepare plans for the implementation of the policies of the Ministries of Education, to orient teachers and teacher-educators in service and to provide consultancy services for educational workers. These institutes have several subject and method departments, each department having two to three persons as specialists The newly appointed teachers come to the Regional Institutes of Pedagogy for training and consultation. Arrangements are made for the new teachers to observe other teachers at work, while staff members of the Regional Institutes supervise the teaching of these fresh teachers. The institutes also hold classes in various subjects for post-graduate studies for working teachers New techniques of teaching are devised by the institutes of pedagogy and teachers are acquainted with them. Another programme is organized for senior educational workers like the headmasters and inspectors of schools, management personnel and teacher-educators

A Physics Class at the School of Pedagogy at Nitra

The Central Institute of Pedagogy in each State supervises the work of the Regional Institutes It plans, experiments and finalizes the new programmes for improvement and arranges lectures for the benefit of the staff of other institutes and schools. The seminars and conferences are also organized on various aspects of teacher education. It would, thus, be seen that the institutes of pedagogy in the CSSR are discharging almost the same functions as the NCERT and SIES in India.

Higher Education

Higher education for the first degree in CSSR is provided at the institutes of higher education or university faculties. The first degree takes four years to comlete by regular day classes attendance Others may do it in six years. There are separate universities for technical subjects like engineering and agriculture. An integral part of education at higher level is the participation by the students in the public life and making them aware of the importance of material production, respect for work, for the working class and for the Socialist State. Military and paramilitary training, physical education and sports are a part of the compulsory educational programme at the higher level. Part-time courses are also offered by the institutions of higher education and universities for those already in service.

Adult Education

The process of education for workers is continued through adult education also. It is being achieved either by making arrangements in the secondary schools, institutions of higher education or by the organizations where they work. The main purpose of adult education is to provide opportunity for further education to the workers in their respective vocation which may be academic, technical or economic. The adults are oriented in the pedagogical and political philosophy of the socialist society The out-of-school education to adults is provided by cultural organizations run by the national committees and other public organizations and institutes The press, radio, television and films are also used for the purpose

Observing the race between education and disaster

"Anyone who tries to grasp what's happening in education at a given moment risks being overtaken by events," writes Dr Charles Hummel who nonetheless has undertaken to do just that in *Education Today for the World of Tomorrow*, now published by the Unesco Press, reports Betty Werther in *Unesco Features.*

The title itself implies a sense of urgency, a race against time, or, as Dr. Hummel puts it in a phrase borrowed from H.G. Wells, "a race between education and disaster," and he goes on to remind us that "the children in school today are the ones who will shape the beginning of the third millenium."

The book is essentially a report on the two-year period preceding the 35th International Conference on Education held in Geneva in 1975.

Many countries, Dr. Hummel reports, are redefining their goals and thinking about education more in qualitative than purely quantitative terms, even more carefully within overall development plans.

"There are obviously certain problems which apply to a specific category of country", he writes, "but almost all countries are confronted with certain major tasks " These centre on three main areas around which the book pivots life-long education, democratization, and education and society.

Dr. Hummel views the development of the concept of life-long education as "one of the most striking events in the history of education" and goes so far as to compare it to the Copernican revolution. Although he notes that, "nowhere in the world has the system been completely realized", he proposes a typical model, and gives a few examples of interesting experiments in that direction He cites, among others, the communal educational nuclei in Peru which attempt to integrate formal schooling with out-of-school activities for adults and children alike. He also mentions the 'Ujamaa' villages in Tanzania and open school experiments in Great Britain and France.

The chapter on 'democratization' makes clear that this is not only one of the most crucial aspects of educational development in the world today, but also one of the most controversial. Under the shadow of the continuing debate between liberalism and egalitarianism, we find such notions as "equality of access" and "equality of opportunity being re-examined and re-defined, although, writes Dr Hummel, there is now fairly general agreement that equality no longer means "the same education for all", but the "best education for everyone".

But above all, in an analysis "as objective as possible" of trends and problems in education today, he attempts to impress upon the reader that "everywhere in the world we can find a growing awareness of the totality of problems, the integration of educational policy with a general policy of social development, not only on a national but also regional and even international scale".

23 Million Americans are illiterate

MORE than 10 per cent of the adult population of the United States—about 23 million people—is practically illiterate, incapable of reading a railway timetable or filling in a form, according to a news item published in *The Hindustan Times* (17 July 1978).

This is the conclusion of US education authorities, who have also reported that the proportion of illiterate school children was nearly the same.

Many parent associations, especially in California and New York have strongly criticized teaching methods in schools, and put the blame on teachers for their children's inability to read or write

New York Deputy Mayor, Herman Badillo said the children knew that "if you learned, you passed. If you didn't learn, you passed."

"The reason for this ironic situation is that it was considered to be sociologically bad for a child to be left behind.

"We considered it to be sociologically worse for a 17-year-old youngster to be unable to reason. The blame for this is the emphasis on freedom in US schools today, and the lack of emphasis on the discipline of reading, writing and arithmetic".

The new format of exams is also criticized, as ticking off replies on a multiple choice paper later marked by computer hardly encouraged students to learn how to express themselves clearly and logically

Schools however, could not be blamed for everything, educators pointed out. For, they said, society has put so much emphasis on television and cinema rather than libraries that reading and writing were bound to lose their importance.

Authorities were meanwhile concerned to find that while the cost of educating a pupil rose between 1964 and 1974 from $800 to $1,400 a year, the level of mathematics and oral and written expression achieved actually dropped.

Statistics showed that in big cities and the unemployed young people between the ages of 16 and 21 were virtually illiterate.

NEWS FROM FIELD UNITS

Bhubaneswar

The Orissa Education (Second Amendment) Bill, 1978

THE Orissa Legislature has passed this Bill during its last session This Bill empowers the State Government to amend the Orissa Education Act, 1969 and provides for the creation of a 'State level common cadre' for the teachers of non-aided schools and colleges in order that those teachers may be transferred from one educational institution to another when warranted in the interest of the concerned teachers or in the public interest and on academic considerations.

The Bill seeks to regularize the appointment of teachers up to 1 December 1976 in the non-government colleges and to authorize the government to issue an ordinance to regularize the appointment of teachers made up to the above date in the non-government secondary schools in the State.

The Bill provides against the election of Senate and Syndicate members of the Utkal, Berhampur and Sambalpur Universities more than twice.

Meeting of BSE

The Board of Secondary Education, Orissa, has taken the following decisions in its meeting held in April 1978 :

(*i*) From the next academic year, games should be taught as an optional subject at the high school level

(*ii*) Instead of two papers, each carrying 100 marks, there shall be only one paper in English, carrying 100 marks, in the High School Certificate Examinations conducted by the Board from the next year.

(*iii*) Attention should be paid to the extension of the Central Office building of the Board at Cuttack, and to the construction of buildings for the regional offices at Berhampur and Sambalpur during the financial year 1978-79. Staff quarters should be constructed at Cuttack, Berhampur and Sambalpur, and guest house with attached canteen, buildings for the library and reading rooms, and a godown for storing textbooks published by the Board would be constructed in Cuttack during the above period.

State Board For Adult Education

The State Department of Education and Youth Services decides to make its programmes for adult education more extensive in order to wipe out illiteracy from among 50 lakh of adults in the age-group 15-35 during the Sixth Five Year Plan period. According to the decision of the State Government, a Board has been constituted with the Minister for Education and Youth Services as its President and the Deputy Director of Public Instruction in-charge of Adult Education as its covenor The Principal, Regional

College of Education, Bhubaneswar has been taken in the Board as a member.

Literacy Drive

An Adult Education Centre has been started in the village Jhar under the Sohela Block of Bargari sub-division under the auspices of the Nehru Yuva Kendra, Sambalpur, by the combined efforts of the Yuva Sangha and Maheela Samittee of the village.

Compulsory Insurance Scheme for Teachers

From April 1978 the State Government has started a Compulsory Group Insurance Scheme for the benefit of 1,17,489 teaching and non-teaching staff working in 41,332 aided non-government educational institutions in the State. According to this scheme the first instalment of the premium would be deposited by the Education Department out of the grant-in-aid to be paid to these aided non-government educational institutions This amount would, however, be recovered from the salary of the concerned employees in 12/18 equal monthly instalments. The objective of the scheme is to assist the family of an employee in case of his/her premature death ☐

The ASIDO invites research articles, project reports, proceedings of seminars and workshops, news of festivals and exhibitions, information on activities of institutions and organizations such as libraries and universities, museums and galleries, foundations and research centres, academies and associations, etc.—in short, any significant contribution on Asian cultural topics. A remittance of US $ 40/- for each 325 words will be made on the edited version of submissions. For details, please contact · ASIDOC (A quarterly bulletin of the Asian Cultural Documentation Center for Unesco), Post Box 41/2786, Tehran, Iran. Cable Address : ASIDOC Tehran.

Book Reviews

Study of the Young Child: Indian Case Study

National Institute of Public Cooperation and Child Development, 1976, pp. 201, Rs. 8 00

DURING the Fifth Five-Year Plan period the UNICEF commissioned the present study as part of a global venture. The study is claimed to affect the result of the government's and the UNICEF's involvement in the development of services aimed at the young child. Though the date is essentially based on the 1971 census, there is little to suggest that the situation has not worsened since then. Indian poverty is proverbial and so is the quality of our life. Slums, dirt and hunger have been with us down the ages and there is little hope that we shall overcome them in near future. The sufferings of humanity is thus reflected in the deprivations of the child.

To cite the report:

> According to the 1971 census, there are 115 million children between the ages of 0 to 6 in India. At least 46 million of them live in poverty. The plight of those 9.7 who live in the teeming urban slums is obvious Weakened by inadequate nutrition, they die from the disease caused by unsafe water and lack of sanitation...If they live, they rarely complete school, repeating the cycle of poverty and human wastage of their parents.

Against this bleak background the complaint against the failure of this or that system of education appears futile The God's truth is that the child is hungry, deprived, poor and his parents are in no way better than him. Where does one start any meaningful programme ? If like Tamil Nadu, mid-day meals are given in schools, children come more for these meals than anything else. Even this would be something if India's poor children could be given one square meal wholesome a day. They would grow up less diseased, more intelligent and would have thus acquired the wherewithals for struggle in life.

The present study gives a synoptic view of the agencies working in the field of Child Development. Numerous voluntary bodies are active in this area. In fact, because of their efforts a general awakening has been created that the child needs attention. The study also points out that the lack lies in the existing programmes. There is need for regular accurate supply and collection of data on children.

What impresses one most is that the study has laid particular stress on research in this area. Research is needed to enlighten the decision-makers and help voluntary bodies to make necessary efforts and ameliorate the condition of the child. All manner of status studies in the area and intervention programmes have to be conducted and worked out The underlying idea being : the more we know the better shall we act. Of course, research must always be conducted with action in view, because research *per se* is luxury which poor nations could ill-afford.

There is one point which needs be mentioned here. The only infrastructure we have is the village panchayat and in cities, district boards and municipalities. Firstly, one must survey the adequacy of this facility, and secondly, attempt to improve it, because everyone knows that this is not an efficient arrangement For a large country like ours any programme to take roots must be communicated and propagated through an efficient infrastructure of the most sophisticated type. These are times when one is tempted to say that we lack neither knowledge nor will to act, only the medium is missing. If not in the past, at least in 1979, the year of the child, we ought to take some concrete steps to improve his plight if nothing else is possible.

NEERJA SHUKLA, Lecturer, Journals Cell, NCERT, New Delhi

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Elements of Information Science

C G. Viswanathan. Today and Tomorrow's Printers and Publishers, New Delhi, 1976, pp. 120, Rs. 35 00

MANY ills of the present-day world are due to a communication gap from one end to the other. Information science, a development of library science, has recently emerged in these era of interdisciplinary teaching and research, involving the integration of physical and social sciences, humanities and fine arts, and computer techniques. It is very likely that this branch of science would fill this communication gap. A conceptual approach of the development of information science is very essential even to a novice and the present book by Shri Viswanathan should prove useful.

After a clear preamble on the details of information science in the first two chapters, the author presents the structural and organizational aspects of a typical information retreval system. The role of non-book materials such as audio-visual aids, indexing system and the associated legal aspects, have been delt with in chapters 3 to 7. The treatment is sketchy and lacks an elementary approach. For example, in Chapter 4 on 'non-book materials' the author does not explain elements of standard cataloguing of non-book materials, instead he discusses the books on the subject with two examples. This kind of treatment is neither necessary nor sufficient for a book of this kind. Documentation and abstracting are vital for the rapid growth of information science and in view of the explosion of knowledge all round, the importance of a computer can hardly be over-emphasized. Such a machine handling of information has been explained in the remaining chapters illustrating the material with flow-charts. The last few chapters deal with the core of information science, namely, abstracting and bibliography. These two sciences also use the computer heavily. So these two chapters should have preceded that dealing with the machine handling of information.

There are a few minor faults in the making up of the book like omitting a diagram which has been given in the list and misprinting the page numbers.

On the whole, this book is well on time and is a welcome addition to the libraries though it may not be possible for an individual to possess a copy as the price (Rs 35) is prohibitively high.

VIJAYA MURTHY, India International Centre Library, 40 Lodi Estate, New Delhi. ☐

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EDITORIAL

Education and Society

EDUCATION is a mighty serious business All societies attempt to offer an education which suits their requirement Surprisingly enough, there has hardly been a society in any period of history when education has not been criticized very vehemently by its that vocal section which has benefitted most Also, this vocal section has tried to drag education toward its own preconceived goals. The most refined, i.e. the elite groups have sought to let the system open up to accommodate everyone The goal-oriented and the competitive types have moved into the opposite direction and have fought for restricting these facilities to a limited few. In the name of what Napoleon called 'jobs for the talented', educational provision itself has been made highly competitive and distinctions have been sought to be created in the garb of a major or minor university, vocational and classical courses of study, etc. The fact, however, remains—those who have nothing to lose are indifferent and the ones who have their own axes to grind would not like to give in on one ground or the other. If one wanted to have examples of both they are available in the report *Education for Our People*, brought out by the Citizens of Democracy .

> I have always had a deep faith in the capacity of education to bring about individual growth and social transformation. Unfortunately, the formal system of education which we have created for ourselves does not serve either of these purposes. On the one hand, it gives wrong education to the upper and middle classes who are its principal beneficiaries. It makes them aliens to their own culture through the adoption of the values and life-styles of a consumption-oriented industrial society. It also converts them into a parasitic class which perpetuates and even intensifies the poverty of the masses. On the other hand, the common people, who mostly remain outside the school system in spite of its huge size and enormous cost, continue to be deprived, not only of education, but also of many other good things of life. The system has thus failed to promote individual growth. It also becomes more of a hindrance than a help to

> bring about an egalitarian transformation (Jaya Prakash Narayan in the Foreword). It would be incorrect to describe the existing educational system as an instrument for educating the people; the evidence adduced above clearly shows that it is more appropriately designed for not educating them. In fact, the primary objective of the system is not to spread education among the people, but to function as an efficient and merciless mechanism to select individuals who should continue to remain in the privileged sector or enter it afresh. It does not discharge even this task impartially and, as we shall see presently, functions in such a biased fashion that those who are already in the privileged sector find it easier to continue therein while the underprivileged find that the access to the privileged sector through the portals of education is becoming more restricted and increasingly dependent on chance rather than on merit. The main achievement of the system, therefore, is to condemn the bulk of the children of the common people as drop-outs and failures and to consign them to a life of drudgery and poverty which has hardly any parallel in the contemporary world or even in our own earlier history (pp.13-14).

The internal pulls in a society become obvious only with time. Stages and ladders of education acquire names and labels. Irrespective of what happens in the name of educational change, education merely responds to the needs of society. On its own it seldom offers anything.

September 1978 GENERAL EDITOR □

Assessment in Letter Grades

Delhi Teachers' Viewpoints

ATMA NAND SHARMA
Professor of Education, NCERT, New Delhi

LAST YEAR the Central Board of Secondary Education announced that it was going out of 'Pass', 'Fail' and the 'First', 'Second' and 'Third' division marking system. The students will be assessed on a five-point scale—A,B,C,D,E, indicating 'Outstanding', 'Very Good', 'Good', 'Fair', and 'Poor' achievement, respectively. The Board perhaps knew that substituting another set of symbols for 'Distinction', 'First', 'Second', 'Third and 'Fail' wasn't all there was to it Perhaps the technical experts of the Board and the specialists in the Examination Reform Unit, NCERT thought that they knew the problems of the new change-over and their solutions. They took many things for granted. The technical experts, perhaps, thought that reporting in letter grades on a five-point scale was more meaningful, desirable and reliable. But what they did not know was that it was shoving off on a new programme as big and as tough as the toughness of the problem confronting education—the curriculum-change problem. They seemed to have overlooked that one cannot report intelligently unless one first evaluates intelligently, and one cannot evaluate intelligently unless one knows what one was trying to do, what were the objectives of new curriculum-change.

Every school and every teacher has objectives. But few teachers and educational administrators could tell what they are in specific terms. Yet anyone could tell that the purpose of education is to change the behaviour of the learner. If going to school is to result in certain desirable changes in the learner's ways of behaving, then the objective problem is . How should the learner learn to behave ? What do we want him to do ? When this has been decided, the evaluation problem is : What kind of reports should we make to tell how well he has done the things that he should do ? It sounds simple but improving marking and reporting practices is not going to be that easy.

How to Approach ?

In my opinion, for planning every aspect—administrative, organization, programme, materials, methods, evaluation records and reports—it appears quite natural to start from what the teachers, educational experts and evaluation experts hold as their viewpoints on marking and reporting. Let them identify their viewpoints and challenge them whenever they disagree. It is also my firm belief that without analysing the similarities and differences between all groups engaged in improving marking and reporting, little may be achieved. And this means first working out viewpoints of different groups. This is perhaps the most fundamental principle of learning. There is only one way to learn to ride a bicycle—by riding a bicycle. One cannot learn to ride a bicycle by reading about it or by having someone tell you how to do it. And we cannot improve our marking and reporting merely by reading about what others have done.

Teachers' Viewpoints

Making sound evaluations is dependent upon having sound basic beliefs which serve as guides to action. In addition to having sound basic beliefs, one should have command over relevant evidence—knowledge, information, facts—which supports one's beliefs.

Even having sound basic beliefs and command of the evidence to support them, however, will not ensure consistent behaviour with what one believes and one knows. One has to recognize the implications of his belief. One may have to break down the habits which are responsible for much of his behaviour and for his doing things that are inconsistent with his beliefs and with what he knows. Many intelligent teachers and educational administrators subscribed whole-heartedly to the modern philosophy of education. They are well grounded in the modern psychologies of learning.

They would agree to most of the goals and objectives of primary, secondary and higher secondary education as suggested by the Kothari Education Commission. They believe that the students' school experience should be adjusted to his needs, purposes and interest.

To ascertain the points of views on some of the basic issues on marking and reporting in letter grades, a questionnaire was developed. Somehow the technical experts have been reluctant to respond, the educational administrators have not been finding sufficient time to reply. However, teachers have well responded.

A large number of summer schools were going on for acquainting teachers with the new curriculum and textbooks required for the new pattern of education in the Delhi schools. Out of 450 teachers who attended summer schools, about 400 returned the completed questionnaire. The respondents represented both postgraduate and undergraduate teachers of biology (89), chemistry (76), physics (37), mathematics (10), economics (50), commerce (13), geography (32), English (68), and general category (35). Of these papers a 25 per cent random sample of those who completely answered the questionnaire was analysed.

Analysis of Responses

A key was developed with which the

responses were checked. The percentage of wrong responses for each item are given in Table 1.

Table 1

PERCENTAGE OF WRONG RESPONSES FOR EACH ITEM

Item No	*Error* %	*Item No.*	*Error* %	*Item No*	*Error* %
1	25	24	37	47	38
2	67	25	32	48	62
3	24	26	48	49	42
4	57	27	26	50	18
5	25	28	35	51	21
6	64	29	30	52	16
7	11	30	11	53	21
8	23	31	81	54	19
9	68	32	17	55	38
10	12	33	46	56	58
11	23	34	61	57	56
12	19	35	35	58	23
13	24	36	22	59	24
14	67	37	25	60	12
15	77	38	36	61	22
16	18	39	31	62	78
17	80	40	27	63	25
18	28	41	54	64	46
19	43	42	18	65	17
20	18	43	53	66	28
21	69	44	55	67	29
22	31	45	19	68	46
23	50	46	23	69	16
				70	9

From Table 1 it will be seen that no statement was answered correct by everyone who completed the questionnaire. The error percentage ranges from 9 to 80 per cent. If we could regard the error from 0 to 25 per cent as negligible then there are 31 such items. On the other hand, if 76 per cent error and above could be regarded as severe then four items fall in this category. The next negligible category consisting of error percentage from 26 to 50 per cent would include 22 items; and the next category with error percentage ranging from 51 to 75 per cent would include 13 items. The items fall in the four categories as shown in Table 2.

Table 2

CATEGORIZATION OF ITEMS ACCORDING TO ERROR PERCENTAGE

Error Percentage	*Item No*
1. 76 and above	15, 17, 62
2. 51-75	2. 4, 6, 9, 14, 21, 34, 41, 43 44, 48, 56, 57
3. 25-50	18, 19, 22, 23, 24, 25, 26, 27 28, 29, 31, 33, 35, 38, 39, 40, 47, 49, 55, 64, 66, 67, 68
4 0-25	1, 3, 5, 7, 8, 10, 11, 12, 13, 16, 20, 30, 32, 36, 37, 42, 45, 46, 50, 51, 52, 53, 54, 58. 59, 60, 61, 63, 65, 69, 70

So Delhi teachers held such unsound basic beliefs as the following :

1. If because of native inability a student is failing in some particular class, even though he may be doing all that might reasonably be expected of him, the teacher should avoid doing anything that might cause him to recognize his inability and to develop an attitude of anticipating difficulty in similar classes.

   (Item 17, 80 per cent agree)

2. School marks should be competitively determined by comparing the student's achievement with the average achievement of the members of his class

   (Items 15, 77 per cent agree)

3. There is no conflict between the modern educational philosophy,

that it is desirable for everyone who can profit thereby to be enrolled in the school, and the practice of reporting low marks to students who do all that reasonably might be expected of them but who are lacking in ability to do successfully the assignment which the school sets up for them to do.

(Item 21, 69 per cent agree)

4. The substitution of evaluations of satisfactory, unsatisfactory or passing/failing by the A,B C,D,E system of grades represents a real improvement in marking and reporting

(Item 9, 68 per cent agree)

5. The competitiveness so apparent in everyday adult living should be recognized as a reasonable and sound justification for the conventional competitive system of marking and reporting.

(Item 14, 67 per cent agree)

6. With rare exception it is possible to measure by the use of present well-developed instrument the degree of achievement by the student of such outcomes of education, citizenship, worthy use of leisure.

(Item 6, 64 per cent agree)

7. A system of reporting which requires much more than the recording of a letter grade is educationally unjustifiable because it is uneconomical of the best use of a teacher's time.

(Item 48, 62 per cent agree)

8. If a student who does all that may reasonably be expected of him in terms of his ability is actually at 'E' level in his scholarship achievement, the school is doing a disagreeable but nonetheless important service to him by reporting a single grade 'E' in his after-school life.

(Item 34, 61 per cent agree)

9. If a student in spite of his doing all that might reasonably be expected of him is unable to profit by his enrolment in a particular class because of native inability, he should be withdrawn from the class and enrolled in some other class in which he can be successful.

(Item 27, 60 per cent agree)

10. The stimulus to work resulting from the use of conventional school marks is not attainable in any considerable degree by the use of other devices such as test scores, test records, and individual progress charts.

(Item 56, 58 per cent agree)

11. In their out-of-school life, individuals are compared with each other and evaluated on essentially the same base as in conventional school practice.

(Item 4, 57 per cent agree)

12. The practice of using the mark as whip by which the child is forced to engage in activities which are meaningless and distasteful to him is defensible if the child does not have a strong initial interest.

(Item 57, 56 per cent agree)

13. Teachers' reports to the guidance counsellor should not include information which is not also reported to the student.

(Item 44, 55 per cent agree)

14. Learning activities stimulated exclusively by external pressures and extrinsic values are likely to be continued after the pressures

are removed.

(Item 41, 54 per cent agree)

15. It is safe to assume that the correct measurement of a student's civic knowledge provides an equally correct measurement of his civic behaviours, the student who ranks high in civic knowledge will also rank high in civic habits.

    (Item 43, 52 per cent agree)

16. The conventional marking system tends to discourage dishonesty among students.

    (Item 23, 50 per cent agree)

The higher secondary school teachers of Delhi can be regarded as the best qualified, well paid and certainly falling in the top 10 per cent group of teachers of the country. And if their basic beliefs, knowledge and information on some of the basic issues in marking and reporting are not satisfactory then certainly the majority of the teachers in the country cannot be assumed to be possessing the knowledge, information, fact and basic beliefs. They would need much more assistance and efforts, education and in-service training before the marking and reporting practices can be improved or grading system can be implemented.

Inconsistencies in Views

A single item or a response connot indicate consistency of behaviour. To determine how consistent were the views of respondents, 34 of the 70 statements in the questionnaire were matched in 11 groups each of which included 2 to 5 statements. For example, Item 1 shows that conventional marking and reporting practices are inconsistent with the modern philosophy of education. Item 11 states that the conventional marking system tends to encourage a student of high scholastic ability to continue in school and to discourage and eliminate those of low scholastic ability (which would not be desirable according to the modern philosophy of education or when we want to have general education of 10 years for all). Item 21 says that there is no conflict between the modern philosophy of education and the practices of reporting low marks to students to do the best they can but who are low in their ability to do successfully the assignments of the school.

If one agreed with Statement 1, and he is consistent, he would have to agree with No. 11 and disagree with No. 21 or conversely, if he disagreed with No. 1, he should disagree with No. 11 and agree with No. 21. Whether response is wrong or right according to the prescribed key, the inconsistency is determined by a view held for items of 11 matched groups. The maximum possible consistency score for a person could be 23. The distribution of consistency scores is shown in Table 3

Table 3

FREQUENCY DISTRIBUTION OF CONSISTENCY SCORES

Score	23	22	21	20	19	18	17	16	15	14	13	12
Frequency	0	1	0	5	10	13	18	26	12	12	3	0

From Table 3, it is noticed that none is completely consistent or inconsistent in his views. The consistency ranged between 56 and 94 per cent with a medium consistency of 75 per cent or inconsistency of 25 per cent. Although some inconsistency may be due to misinterpretation of statement, but misinterpretation can account for 10 per cent in consistency only. Therefore, when the consistency score is less than 90 per cent, it indicates that the respondents do not have strong guiding convictions on the basic generalizations or principles involved or they do not recognize all the implications of their convictions. In this investigation, 99 per cent of the subjects did not either have strong guiding convictions on the basic principles of evaluation, marking and reporting or they did not recognize the implications of the convictions. Further, in 6 out of the 11 matched groups there was almost no consistency.

In both the situations, the inconsistency has an adverse effect on practices. Such inconsistent evaluators and teachers can create more confusion in modifying the behaviour of children in the desirable direction through their inconsistent method of evaluation and reporting. Therefore the task of orienting teachers towards the philosophy of evaluation and reporting in letter grades appear to be important and of very great magnitude. However, perhaps the dimension of the problem was not realized by the Board specialists which resulted in the confusion which we all know.

Conclusion

The study has been carried out on Delhi school teachers who attended summer schools organized for orienting them to the curriculum and textbooks of the new pattern in 1975. To ascertain the points of views on some of the basic issues on marking and reporting in letter grades a questionnaire was developed and the responses were checked with the key prepared for the purpose. An analysis of wrong responses showed that the error percentage ranged from 9 to 80 per cent. But more than this 99 per cent of the subjects were inconsistent in their views. They did not either have strong guiding convictions on basic principles of evaluation, marking and reporting or they did not recognize the implications of the convictions. In both the situations the task of orienting teachers through in-service and pre-service training appeared to be of a great magnitude before the marking and reporting practice can be improved or grading system can be implemented. □

The Choice of Questions

A Flaw in Examinations

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THE WORD examination conjures up a feeling of shudder, nay horror, amongst all—the teacher and the taught alike—though for different reasons. But the examination is a part and parcel of the whole process of teaching and learning and as such is totally inescapable and unavoidable. It is a common knowledge that a large number of students every year boycott the Public/University/Board examinations on different pretexts but the most common reason encountered is : The question paper is very difficult—no choice or very little choice. It is strange that this very choice of questions is a big source of error in all the examinations.

A GOOD QUESTION PAPER

The characteristics of a good question paper, amongst other things, are content validity, difficulty level and discriminating value.

Content Validity

A question paper possesses a high degree of content validity if it adequately samples the subject-matter to be tested. In other words, the problem is one of sampling the units into which the whole subject-matter is divided. Giving allowance for the limitations of random sampling and subjectiveness of the paper-setter, let us assume that 80 per cent content validity has been achieved for a particular paper (rather a high per cent). Assuming that there are eight questions and the students are asked to attempt any five questions, the content validity is reduced to 50 per cent ($5/8 \times 80 = 50$ per cent). If the minimum pass percentage is 35, it means that any student who has efficiently learned 17.5 per cent (35/100×50=17.5) of the syllabus, passes the examination. Moreover, applying the simple formula of permutations and combinations, the students can choose five questions out of eight in 56 different ways

$$ {}^{n}C_{r} = \frac{\lfloor n}{\lfloor n-r \times \lfloor r} $$

$$ {}^{8}C_{5} = \frac{\lfloor 8}{\lfloor 3 \times \lfloor 5} $$

This means that any student who manages to learn 17.5 per cent of the syllabus in any one of the 58 ways is declared pass. An appalling situation indeed ! It has also bred in mental stagnation and sterility amongst teachers by allowing them to teach only a few topics of their choice and by leaving the rest of the syllabus uncovered. This leaves ample time at their hands to enable them to indulge in interests and pursuits other than academic and intellectual This pollutes the whole atmosphere of universities, colleges and schools.

Difficulty Level

It is a common knowledge that different units of syllabus have different difficulty level but when there is a choice of questions, the difficulty level of all the questions is not the same, not even adequately comparable. This will result in the candidates attempting questions having low difficulty level and thereby showing a distorted performance.

Discriminating Value

A good question paper must discriminate amongst the students and put them into different grades such as Excellent, Very Good, Good, Fair, Marginal and Poor. This can be achieved by asking questions which require the students to display different abilities such as 'factual knowledge', 'comprehension', and 'application'. The level of difficulty of these abilities is in the ascending order. Any arbitrary choice of questions, requiring different abilities to answer them, thwarts all attempts to achieve any degree of discrimination, whatsoever.

CRUX OF THE PROBLEM

Thus we see from the foregoing paragraphs that the choice of questions spoils the very purpose of the examination and results in lack of content validity, difficulty level and diminishes the discriminating value So the arbitrariness of the questions may prove paradoxical—giving a pass to one who has not worked at all, bringing a candidate to a higher level then he actually deserves and may be a cruel joke for another by pulling him down the ladder, though he might have tried to learn efficiently the whole of the syllabus.

THE REMEDY

So, what is required is the restructuring of the question paper on more rational and scientific basis. First of all, a blue-print of the question paper should be drawn. The whole syllabus may be divided into a number of sub-units. Each unit and sub-unit may further be divided into knowledge, comprehension and application. Weightage to each unit, sub-unit and under each sub-unit to knowledge, comprehension and application should be carefully determined before setting out to frame a question paper. A suggested blue-print of unit of syllabus (logarithm) for Class XI students is given on the next page.

No Mathematical Formula

No mathematical formula can be laid down for determining the weightage to be

M.M. 100.

Sl. No	*Sub-Unit*	*Marks Allotted*	*Marks Knowledge*	*Marks Comprehension*	*Marks Application*
1.	Notations	10	5	5	–
2	Laws of Logarithm	25	20	5	–
3.	Rules for Finding Characteristic & Mantissa	10	10	–	–
4	Finding Logs & Anti-Logs	15	–	–	15
5.	Simplification of Problems	40	–	–	40
	Total	100	35	10	55

given to factual knowledge, comprehension and application. It is normally agreed to give 40 per cent weightage to factual knowledge and 30 per cent each to the other two abilities. This weightage, of course, will vary according to the level of the examinees and the purpose of the test The higher the level, the lower the weightage for factual knowledge and correspondingly more weightage for the other two.

The Ideal Question Paper

The ideal question paper, free from the shortcomings discussed in the preceding paragraphs, will consist of three parts. objective, short answer and essay type. These types may be so designed as to test the abilities of knowledge, comprehension and application, respectively. In essay type only some internal choice may be offered. This type of question paper will have a fair degree of content validity, difficulty level and discriminating value. Moreover, the examiner's subjectivity in marking will be considerably less as the major part of the paper will be of objective and short answer type. The overall reliability of examination will increase considerably and the criticism and demands for a change in the pattern of examination will be successfully met to a great extent □

Causes of Mental Retardation in Children : *A Study*

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Introduction

MENTAL RETARDATION now a days is an important social and medical problem facing the world. This is the condition which needs understanding and attention. Mental retardation or mental subnormality may be defined as a condition of arrest or incomplete development of intellectual capacity. It needs a great deal of effort to find out and know the cause of this particular problem. Mental retardation can either be due to inherited and/or induced by external forces like disease and injury. In view of Tredgold's social criteria, mental subnormality is a relative, rather than absolute phenomena. The socio-economic factors—poverty, malnutrition, poor health, status in the family, etc.—play an important role in causing mental retardation.

The emotional impact on the parents, who have just been told that they have a mentally retarded child, is beyond the comprehension of an individual who has never thought of it and faced such problems. So much so that some parents either start feeling guilty or show anxiety, hostility, rejection and start giving an over-protection to their child. But some parents, if convinced properly, start accepting their child. Such parents approach paediatricians and psychologists to get help for their children, to know the cause of mental subnormality

The present exploratory study was conducted to find out the cause of mental retardation. It was not possible to trace out the causes from inheritance because it needs a complete laboratory test. To know and help the prevention of the external causes, the present research was conducted on the children who visited the Child Guidance Clinic of R A K. College of Nursing, New Delhi, during 1975 to 1977

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*The author is indebted to Shri M V Singh, Director, Child Guidance Clinic, R A.K College of Nursing, New Delhi, under whose able guidance and stimulating influence she pursued this interesting enquiry with his valuable suggestions and advice.

Material and Method

The sample of the study consisted of 250 children diagnosed as mentally subnormal in the Child Guidance Clinic, R.A.K. College of Nursing, New Delhi. The age of this group ranges from two years to 18 years.

Method of Diagnosis

The following methods were used for diagnosing and coming to the conclusion that the child was mentally subnormal :

- *a.* Before registration in the child guidance clinic, physical fitness of each child was confirmed by the medical practitioner.
- *b.* Complete personal and social history was taken from the parents or the guardians, whosoever came with the child in the clinic. It also includes prenatal and other relevant information about the parent.
- *c.* Intellectual assessment by the intelligence tests such as
  - *i.* Vineland Social Maturity Scale
  - *ii.* Draw a man
  - *iii.* Bhatia's Battery or Drever's and Collin's (according to age)
  - *iv.* Central Institute of Education Test of Verbal Intelligence
  - *v.* Progressive Matrices.

Based on the material thus obtained the diagnosis of mental subnormality was made. The degree of subnormality was decided on the basis of the following criterion :

Profound	below 20
Severe mental subnormality	21—35
Moderate	36—49
Mild mental retardation	50—75

After that parents were counselled for their child's training part and if the child was found educable then special schooling was recommended.

Common variables taken for the present study were :

1. Parental age
2. Economic condition
3. Sex
4. Birth anoxia
5. Convulsion
6. Ordinal position
7. Family history of mental subnormality.
8. Mode of delivery and also location of the same.

Results

Table 1 shows that maximum number of cases of mental subnormality fall under mental retardation category and then comes moderate, severe and profound.

Table 1

DISTRIBUTION OF CASES AMONG DIFFERENT GROUPS OF MENTAL SUBNORMALITY

Group of Mental Subnormality	*Frequency No. 250*	*Percentage*
Profound	18	7 2
Severe	34	13.6
Moderate	51	20.4
Mild	147	58.8

Table 2 shows that out of 250 children, 164 are male and 86 are female. This correlates with the general view that maximum number of subnormality is found in males as compared to females.

Table 2

SEX AND MENTAL SUBNORMALITY

Sex	*Frequency No 250*	*Mental Subnormality Cases*	*Percentage*
Male	250	164	65.6
Female	250	86	34.4

Table 3 indicates that the highest rate of mental subnormality is among the first born children, i.e. 30. 43 and thereafter there is a gradual decline.

Table 3

RELATIONSHIP BETWEEN BIRTH ORDER AND MENTAL SUBNORMALITY

Birth Order	*Frequency No. 250*	*Percentage*
1st	76	30.4
2nd	55	22 0
3rd	44	17.6
4th	29	11.6
5th	18	7.2
6th	16	6.4
7th	7	2.8
8th	2	0 8
9th	1	0.4
10th	1	0.4

The degree of mental subnormality has no correlation with birth anoxia though it does have some effect on mental retardation, as 56 per cent of cases had mental retardation with birth anoxia (Table 4).

Table 4

RELATIONSHIP BETWEEN BIRTH ANOXIA AND MENTAL RETARDATION

Degree of Mental Retardation	*Frequency No. 250 with Anoxia*	*Non-Anoxia*
Profound	11	8
Severe	27	7
Moderate	35	16
Mild	68	79

X^2- 13 24 df. 3 $P < .01$

The above result shows that the degree of mental subnormality is not correlated with birth anoxia.

Table 5 shows that economic condition has effect of mental retardation, as poor economic conditions would produce malnutrition, poor home conditions, lack of proper learning opportunities, etc. In this study 52 per cent of cases have moderate mental subnormality and they belong to the category of below Rs. 500 income group.

Table 5

RELATIONSHIP BETWEEN CONVULSION AND DEGREE OF MENTAL SUBNORMALITY

Degree of Mental Subnormality	*Frequency Convulsion*	*Non-convulsion*
Profound	15	3
Severe	25	9
Moderate	27	24
Mild	93	54

X^2=6 97, df 3, P. 705 $>$.05 (not significant)

The above data shows degree of mental

subnormality is correlated with convulsion.

Table 6

RELATIONSHIP BETWEEN PARENTAL AGE AND MENTAL SUBNORMALITY

FATHER (A)

Score	*Frequency*	*Percentage*
16-25	26	10.4
26-35	161	64.4
36-45	49	19 6
46-55	11	4.4
56-65	3	1 2

MOTHER (B)

14-23	89	35.6
24-33	139	55 6
34-43	17	6 8
44-53	5	2.0

Table 7 shows that the economic condition does have correlation with mental subnormality.

Table 7

RELATIONSHIP BETWEEN ECONOMIC CONDITIONS AND MENTAL SUBNORMALITY

Income Group	*Frequency No 250*	*Percentage*
Above 1000	27	10.8
Between 500-1000	93	37.2
Below 500	130	52 0

Conclusion

From this study we can conclude that besides biological causes, external causes too have equal effect on mental subnormality There are many common causes in our country which result in retardation and if efficiently dealt with, and perhaps prevented with adequate care, the rate of retardation could be minimized. If the adverse social, economic and cultural conditions, which play a vital part in the causation of retardation, could be improved, the evil of mental retardation can be avoided to a great extent. ☐

Self-Concept and Personality Correlates

A Review of Indian Studies

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SELF-CONCEPT and personality correlates show an important relationship. Personality test measures different variables such as, intelligence, anxiety, adjustment, hostility and physical efficiency, etc. Some of the recent Indian studies in the field of personality are conducted in a school/college settings, both with normal as well as handicapped students.

Different tests and techniques are used in relation to various personality correlates: Non-verbal test of intelligence, physical efficiency test, progressive matrices, personality word-list, anxiety scales, numerical ability test, general mental ability test, new forced choice inventory, and various adjustment inventories.

The data has been analysed using a variety of techniques and statistics such as mean, standard deviation, SEM, SED, correlation, *t*-ratio, analysis of variance, critical ratio and percentage, etc.

Self-concept and Intelligence

Some of the recent Indian studies conducted in the area of self-concept in relation to intelligence are given below.

Vasantha (1970) studied the relationship between the self-concept and intelligence. He found a significant positive correlation between intelligence and self-concept. Vasantha (1970) in another study found that boys' self-concept increased with decrease in intelligence while decrease in girls' intelligence was found to lower their self-concept.

Vasantha (1971) studied the self-concept of forward-backward community and rural-urban areas. He administered the same tool on two different samples and found that forward and backward community students differ significantly in their self-concept scores as well as in relation to different levels of intelligence.

Similar results were found in urban and rural students.

Vasantha (1972) studied the ordinal position in family and self-concept. He found that when intelligence is controlled there is no significant relationship between ordinal position and self-concept.

Passi and Sood (1973) studied the discrepancies between intelligence test, self and teacher estimation in relation to intelligence. Results indicate that test measure and teacher estimation about the performance in numerical ability test are not convergent, consequently, discrepancies among themselves exist, and intelligence and discrepancies in test estimation and self-estimation and teacher-estimation are having negative significant correlations.

Deo and Bhullar (1974) in a study of physical efficiency, self-concept and intelligence found that no relationship exists between self-concept and intelligence.

All the above studies indicate that intelligence and self-concept scores have positive correlation.

Self-concept and Hostility

Bhalla (1971) studied the self-concept of disciplined students. This study reveals that indisciplined students described themselves through greater number of adjectives. Indisciplined students had a low mean of self-concept scores while disciplined students had achieved a high mean self-concept score.

The results yielded much higher scores for indisciplined students and comparatively lower scores for disciplined students. Higher self-concept scores of disciplined students was attributed to their larger number of positive than negative adjectives endorsed by them while higher score indicated high self-regard, lower score did not necessarily indicate low self-regard.

The indisciplined students described themselves as graceful and likable, enthusiastic, energetic, forceful, extroverted and carefree. Disciplined students described themselves as shy, socially withdrawn, well adjusted and relaxed.

Self-concept and Physical Efficiency

Singh and Akhtar (1971) studied the self-concept of visually handicapped and non-handicapped children. They found that the handicapped children have lower self-esteem and social esteem than the non-handicapped children. The handicapped children appeared to be more objective and realistic in their judgement from a social frame of reference. The two groups differed significantly in their self-concept.

Deo and Bhullar (1974) studied the relationship of physical efficiency with self-concept. They found that no relationship exists between self-concept and physical efficiency

The difference indicated above seem to be due to the reason of comparing it with a singular measure of physical efficiency alone while a measure of self-concept is based on a variety of personality correlates. The other reason may be the sample was quite small and selective one The data in this study was also not so normally distributed. The handicapped children have a lower self social esteem than non-handicapped children.

Self-concept and Adjustment

Kakkar (1967) studied the self-acceptance and adjustment. He found that male students who obtained the high adjustment score and opposite tendency in the case of those having low to very low adjustment scores. Male students generally appear to be less well adjusted and consequently capable of less self-acceptance than female students.

Self-concept and Anxiety

Some studies showed the relationship of self-concept with anxiety Vankatramiah (1965) studied the influence of anxiety on the congruence between perceived self and ideal self. He took three groups of subjects—ten normals, five neurotics, and eight psychotic patients. The results indicated that normal subjects have obtained low scores on anxiety and high coefficient correlation between the self and ideal self, suggesting the congruence between the perceived self and ideal self. Psychotic patients showed significantly higher discrepancy than normal subjects (P>0.01). The study showed that ideal self is more associated with anxiety and pathological states.

Deo and Sharma (1971) studied the relationship of self-concept and anxiety. They found that self-concept and anxiety are negatively correlated An increase in self-concept being accompanied by decrease in anxiety. It was found that as ideal self discrepancy increases, anxiety also increases. Both self-concept, positive and negative, dimensions and ideal self discrepancies are linearly related to anxiety.

Passi and Sood (1973) studied the discrepancies between the tested self and teachers' estimates in relation to anxiety. It was found that test anxiety and discrepancy between self-estimation are positively correlated.

These studies indicate that psychotic patients showed significantly greater discrepancy than normal subjects. A study showed that self-concept and anxiety are related. The variation in results seems to be due to three different groups of individuals taken for the study.

Self-concept and Psychiatric Hospitalization

Kehas (1969) found that self-concept declines during psychiatric hospitalization. It may be because of the patient who now realizes that he has been removed from the society and institutionalized. He may look at himself differently because his worst fears have come true. The phenomenon in the lack of change in the out-patients may be due to the stability of their situations through their weekly visit to the clinic. It seems that the researcher needed a longitudinal study about (*i*) what happens to self-evaluation during the course of treatment, (*ii*) a simple method of counting the number of those patients who either deteriorated, improved or maintained a status quo was used in this study; (*iii*) differences in treatment was not limited to hospitalization versus out-patient status so that the findings are not conclusively attributable to this variable; (*iv*) there is no baseline regarding change in self-concept attributable to group versus individual psychotherapy to which the present findings could be related.

Self-concept and Sex Role

The studies conducted in the field of self-concept and sex are mostly on the students from schools and colleges.

Kakkar (1967) conducted a study on adjustment and self-acceptance of school students. He found that male students appear lower on self-acceptance as compared to females.

Black and Paramesh (1969) studied the self-image information and social change in Madras and North Caredina (USA). They found that women subjects were more in favour of ascribed or quality characteristics whereas male students were in favour of other two categories mentioned therein.

Sharma (1969) studied the sex as a source of variation in self-acceptance of adolescents. He found that girls as a whole have significant higher self-concept than boys. This study also reveals that the self-ideal discrepancy scores were significantly lower than that of boys.

Vasantha (1970) studied the sex differences in self-concept The results of this study indicate that boys had significant higher scores in self-concept than girls.

Smart (1971) studied the sex differences. He found that Indian young girls are significantly higher in self-esteem The sex difference at the older age levels was not significant with regard to self-esteem in the Indian sample. Indian girls exceeded younger Indian boys in social orientation.

Passi and Sood (1973) studied the discrepancies between tested self and teacher estimates of boys and girls This study showed that sex difference plays a significant role, produces discrepancy between tested self-concept and teacher estimates.

The results of the above-mentioned studies indicated that the self-concept and sex have important relationship The girls have significantly greater discrepancies between self-expectancies and self-ideal as well as in self-congruance as compared to boys. The females were more in favour of ascribed or quality characteristics than men. The girls showed higher self-concept than boys

Conclusion

Self-concept in an individual develops through learning, attitudes, social factors and his community background. These variables play important role in the development of self-concept. Moreover, it is an acquired or learned process through the influence of various variables. It can be developed in a desired direction. Guidance and counselling can help us in the development of a better self-concept amongst the backward class people.

The studies conducted regarding the relationship of self-concept and sex can be concluded that girls were having significant higher self-concept than boys. Their ideal-self discrepancy scores were significantly less than boys. Women in every society were more traditional minded and they are always in favour of ascribed abilities of human beings Some studies showed that sex difference influences the self-concept and achievement of an individual. The boys have significantly higher scores than those of girls.

The relationship of academic achievement and self-concept revealed a significant positive relationship between the two. Most of the studies conducted with a view to find out the relationship between self-concept and intelligence showed that intelligence is positively associated with self-concept A study reveals a differentiation in self-concept in different community groups while another study reports no relationship between the above two variables.

Self-concept and anxiety were found to be negatively related, self-concept and self-ideal discrepancies are linearly related to anxiety. In one study it was found that test estimates and self-estimates are positively correlated with test anxiety and discrepancy Very few studies have been conducted to investigate the relationship of self-concept with adjustment. The findings of the studies suggested that adjustment and self-acceptance have positive relationship. The male students in general appear to be less well adjusted than females. In the hostility dimension study shows the negative relationship with self-reference. The indisciplined students have a low self-concept score, while disciplined students achieved high self-concept score.

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Vocational Aspiration of Students

A Study

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THE MAJORITY of students leaving the portal of the school after completing their higher secondary education, are neither well acquainted with the employment avenues nor do they have any information regarding the scope of job opportunities Many of them are not conscious of their own suitability in relation to the job requirements. Those who are keen to continue education do not necessarily make a choice of subjects and courses which may be in line with their special aptitude and capabilities.

The introduction of the system of professionally oriented education at the higher secondary level during the fifties created a practical field for a significant improvement in the standards of instruction. This system aims at directing the students to choose a field of study consistent with his aptitude and abilities right at the school level. This system with greater choice of subjects for the students is an attempt to prepare educand at an early stage for a particular profession rather than leaving this choice after the completion of studies in the school.

The higher secondary schools have an important place in our education system These schools are expected to serve as training grounds for young boys and girls. We cannot afford wastage. A wise choice of the subject and the carrier will avoid maladjustment and will increase an individual's chances for success and happiness in life. It is, therefore, important to investigate at an early stage of student's life his/her vocational aspiration so as to know the trend and tender advice. The present study was, therefore, undertaken to know the nature of vocational aspiration of students.

Chander (1957) concluded that the most popular professions among students were engineering, medicine and teaching. Singh (1967) on the basis of his study of higher secondary students of Punjab concluded that 64.0 per cent fathers were farmers, but only 12.36 per cent of their sons wanted to go to their family occupation, i.e. farming. Sandhu (1968) concluded that only 16.25 per cent undergraduates of the college of agriculture have plans to become practical farmers. Shanthamani and Haffez (1970) concluded that there is a strong tendency on the part of students to like technical job.

TECHNICAL PROGRAMME

The study was undertaken in three purposively selected districts (Kapurthala, Jullundur and Ludhiana) of the Punjab State. A random sample of 26 higher secondary schools was drawn from these districts. The data was collected from 300 students of the final year of higher secondary examination For the purpose of selection of respondents, the technique of systematic sampling was followed. The data was collected through a specially prepared questionnaire by selecting every fifth student from the attendance register which was distributed to the respondent students in a group.

FINDINGS AND DISCUSSION

A.I : Vocational Pursuits after Studies

It is clear from the Table that 23 per cent respondents aspire to be doctors and quite a large percentage (63.00) of respondents want to join teaching. A relatively low percentage of respondents (18.66) aspire for engineering Jobs are again consistent with the then prevailing unemployment among engineering graduates. It is noteworthy that 14.33 per cent students want to become farmers and they belong to rural areas. About 6 per cent girls want to be expert in needle and sewing work. It was also noticed that every student had shown aspiration for one or another profession.

A.2 : Preference of Subject for Future Studies

It was assumed that the respondents aspiring for future study may join a college, diploma or any short course. The choices of respondents for further study study were 35.00, 31 33, 17.33, 15.66 per cent for B.A , M.A., B.Sc., B.Ed. and M Sc., respectively. There are small percentage of respondents (2.66 and 1.30) who want to earn a degree of B Com and M.Com. Results show that art courses i e B.A. and M.A are liked by most of the students M.Sc. (Home Sc) and M. Com. subjects have got low preferences.

A 3 · Diploma Courses

Realizing that all the students do not go for higher studies in the art, science or professional colleges, the preferences of such students who may be aspiring to go in any diploma or other short courses, were obtained. It was noticed that 5 per cent students want to join electrical diploma, 8 per cent want to join engineering, 9 per cent students want to join agricultural sub-inspector course, and 2.66 per cent want to join industrial training institute.

It is, thus, clear from the Table that 9.00 per cent students want to join agricultural sub-inspector course and this seems to be due to the students' interest in agriculture. It is rather surprising that only 2.66 per cent students want to join industrial training institute. This percen-

Table

NATURE OF VOCATIONAL ASPIRATION

Sub-particulars	*Preference pattern*			*Total preference*	*Total score*	*Mean score*	*%age of preferences*
	1	*2*	*3*				
a) Doctor	47	14	8	69	117	0.49	23.00
b) Engineer	29	18	9	56	132	0.19	18.66
c) Teacher	89	64	36	189	431	1.43	63.00
d) Business management	19	12	8	39	89	0.296	13.00
e) Farmer	8	16	19	43	75	0.250	14.33
f) Bank service	6	1	9	16	29	0.009	5.33
g) Research worker	14	20	13	47	95	0.316	16.33
h) Army service	21	19	25	65	126	0.420	21.66
i) Workers (needle and sewing)	3	6	9	18	30	0.100	6.00
Overall						0.389	
Degree:							
a) B.A.	55	35	15	105	250	0.833	35.00
b) M.A.	24	29	41	94	171	0.570	31.33
c) B.Sc.	15	27	7	49	106	0.353	15.66
d) M.Sc.	16	22	14	52	106	0.353	17.33
e) B.Ed.	7	13	8	28	55	0.183	9.33
f) B.Sc. (home sc.)	15	9	7	31	70	0.233	10.33
g) M.Sc. (,,)	4	7	1	12	27	0.900	4.00
h) B.Com.	4	3	1	8	19	0.063	2.66
i) M.Com.	1	1	2	4	7	0.230	1.33
Overall						0.389	

Table (continued)

Particulars	*Sub-particulars*	*Preference pattern*			*Total preference*	*Total score*	*Mean score*	*%age of preferences*
		1	*2*	*3*				
A. 3	*Diploma*							
	a) Electrical	6	6	3	15	33	0.110	5.00
	b) Mechanical	5	14	5	24	48	0 160	8.00
	c) Engineering	8	6	7	21	43	0 143	7 00
	d) A.S.I.	9	8	10	27	53	0.176	9.00
	e) I.T.I.	0	4	4	8	12	0 040	2.66
	f) Motor mechanic	4	8	8	20	36	0.120	6.66
	Overall						0.125	
A. 4	*Short Courses*							
	a) Poultry	3	2	3	8	16	0.053	2.66
	b) Farm-machinery	4	2	0	6	16	0.053	2.00
	c) Others	15	12	11	38	80	0.266	12.66
	Overall						0.124	
	A. 1 a to i						0.389	
	A. 2 Degree						0.389	
	A. 3 Diploma						0.125	
	A. 4 Short courses						0 124	
							0 257	

Note : Mean score is on the basis of 300 respondents

tage should be high because 26.66 per cent students fall in the income group of up to Rs. 250. It is hard to imagine that parents with such low earning would be able to support their children in the colleges unless the child wins a scholarship As a matter of fact, several ITI's had been set up throughout the State of Punjab to produce skilled workers for industrial concerns and children of low-income group ought to think of joining ITI because they can acquire petty skills in these institutes and improve their earning capacity and market for employment.

A.4 : *Short Courses*

Only 2. 66 per cent students want to join poultry course and 2.00 per cent farm machinery course. This percentage, although low, yet represents a good thinking of the respondents to acquire practical skill for self-employment. When the mean scores for various professions preferred by the respondents were worked out, it came to 0.389 The mean scores for the students wishing to join colleges, diploma and short courses, came to 0.389, 0.125 and 0.124, respectively The overall mean score comes to 0.257.

CONCLUSION

The results have shown that large number of respondents (63.00) wish to enter teaching profession after their education. Thus, it is important that those concerned with education directly or indirectly, should instill the necessary skills and art of becoming a good teacher. Due consideration for proper education needs to be given so that these individuals achieve the necessary satisfaction. The study shows that higher secondary school students are not much inclined for undergoing short courses and diploma. There appears to be a feeling for continuing higher education primarily for white-collar jobs. The educationists should provide effective measures to rectify this situation.

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Language Teaching

A Psychological Approach

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LANGUAGE is the distinguishing feature between man and animal. As a tool of communication, it shows development of the child in a particular type of environment—social, cultural or educational. Appropriate language at the appropriate place depicts the personality and individuality of a person. The language teacher requires a lot of patience, devotion and tactics to teach a particular language to a particular group of individuals. He has to combine the capacities of a linguist psychologist and an educator. As a linguist, he has to master the mechanism of producing sounds, easily and effectively. As a psychologist, he should learn the device of applying internal as well as external motivating factors in order to arouse the individual's natural impetus to learn a language. As an educator, he has to evolve the methodology to make the teaching-learning process effective. In fact the teacher has to look towards psycho-linguists to make use of their techniques in the classroom situation.

'Learning is a continuous process' is a psychological dictum; hence, the teacher has to arrange the linguistic material in such a way that learning takes place gradually, slowly and steadily. While teaching language to the tiny-tots the main objective of the teacher is to turn the inarticulate human organisms into articulate communicative individuals. The background of the child counts a lot in developing the language skill. Higher socio-economic status with special educational advantages in the family itself or by way of mixing with varied social groups, are highly responsible for rapid development of language.

Nursery and kindergarten schools, the via-media of suitable curriculum, bear the responsibility of providing suitable vocabulary to the young infants. Curriculum should provide simple, basic, quantitative, scientific and creative experiences to young kids so as to provide them the basic knowledge of time, space size, shape, weight and measures, and to make a distinction between the animate and inanimate objects

Language learning is to be instigated by encouraging the instinctive creativity of the child; by way of utilizing sand, clay, paints and figures and by depicting their creation in different names For the young children this training will be more effective if it is combined with art and music. Rhythmic sounds of poems, recited in groups or individually will give the natural impetus to learn language easily and accurately. Meanings are to be conveyed by sense impression, suggestions and rhythm. A child learns use of the language in a round-about way. He does not have the ability to search a dictionary for getting the appropriate meaning of a word that is vague, obscure and unintelligible to him He learns by a number of trials and this practice makes him perfect. For example, the correct meanings of the words 'I', 'You', and 'He' can only be understood if the child is encouraged to speak. By way of talking he will learn that when he is talking to somebody its 'I', with whom he is talking is 'You', and the third one who is listening is 'He'. When he is addressed by somebody he is not 'I' but turns to 'You' and when someone else speaks about him his position becomes of a third person. Words used in a language act as a stimuli to think and understand the situation During early stages it is better to apply external motivation so as to allure him, by way of rhythm, suggestion and sense-impression, to be internally motivated for learning a language. The child is a great imitator of the behaviour of the adults, so whatever model is given to a child the same should be accurate in all respects

At the primary and secondary school levels, the teacher should have correct information of the social group to which the child belongs. Children coming from lower strata of society, show deficiencies in speech, sound vocabulary and language organization. Personality of the teacher exercises a great influence on the personal life of the learner as well as what he learns. Efficiency of the learner and that of the teacher go side by side. The learner must have a clear objective before him. If he wants to learn a foreign language and the objective is to speak that language fluently, then the teacher should speak and also listen to him in that language only to ensure that the learner is able to fulfil his objectives efficiently. The child should be trained to use the language symbols correctly by applying the rules and principles appropriately. The correct presentation of the language by forming the accurate concepts regarding the use of written and spoken words should be made clear to the children.

The general principle of motivation is the basic factor of all learning theories and should be utilized by the teacher in the classroom. He has to find out how he can motivate a child physically and psychically to learn a particular language and literature, Physical motivation means the proper development of health and sensory organs of the individual. If a child has visual defects, he will not be able to read the language correctly with the result that he will spell and pronounce the words incorrectly If the child is not able to hear properly, he will spell and write the words incorrectly. Improvement of the physical conditions is, therefore, a must

The ego-involvement plays a great role in language learning. An inner urge is to be created in the child to have a good language and a good media of expression. By creating extrinsic motivating situations, intrinsic motivation is to be instigated. This is to be done by rewarding the desirable activities of the students. Learning goals, in the beginning, should be 'teacher imposed', and gradually they should be turned into 'self imposed', These goals are to be strengthened by the Thorndike's laws of learning: the Law of Readiness, the Law of Exercise and the Law of Effect.

In order to create real motivation and a need and desire to learn and appreciate the language and literature, the teacher has to make a careful selection of the reading material which is provided to the students. The objective should be to raise the level of appreciation and enjoyment of the students in reading and to encourage the development of thinking, imaginative and interpretative powers of mind.

The process of language learning should be a self-generative process. Each and every step should open a new vista for the learner to learn something new. Teaching is to be followed by learning and learning should change the previous behaviour of the learner, leading to the emergence of new behaviour, new problems, needs and desires Ultimately it leads to the emergence of new methods of teaching. Every step that a teacher follows should create a new desire and urge in a child in the process of learning. There should not be any set rules or convictions for the teacher to follow in the class and these may be changed according to the needs and circumstances.

No learning theory is superior or inferior for a language teacher. By analysing the contribution of different theories, he has to see as to which theory suits best in the classroom In fact the teacher should be free to formulate his own theory by utilizing the contributions of different theories of learning. Everything that a language teacher does in the class can be coloured by the psychological theory he holds as a teacher, psychologist and a linguist. □

On Teaching of Poetry

M. GHOSH

THE AIM of education has never been restricted to a mere acquisition of knowledge. Yet it is a fact that schooling has always been and still is predominated by this very aim alone Most of the time we overlook the point that education at its best comes from a variety of experiences which may be scientific, aesthetic or religious, among many others.

Aesthetic experience includes the study of poetry. Is it justifiable, then, to say that poetry needs to be taught ? A piece of poetry, actually speaking, ought to provide aesthetic experience, the sublime joy of sharing a poet's intense emotions Sad to say, the students get bored by the teacher when he desperately tries to teach them a poem. Unfair as it may appear to anyone with literacy sensibilities, the teachers so often explain the poem threadbare, leaving absolutely no scope for aesthetic enjoyment of any kind whatsoever. Quite oblivious of the enrichment of personality that poetry results in, we treat poetry as if it were a piece of information for the students.

The strategy of teaching poetry, as suggested in this paper, is mainly based upon Forrester's book *Teaching without Lecturing**. Let's focus our attention on school-goers and see how much aesthetic experience we can offer them through the study of poetry. The idea underlying this kind of planning is to provide some direct contact between the poem and the student. Keeping in mind that the general idea of the poem is more important than an explanation of words, phrases, literary illusions, the teacher must leave the difficult parts to be studied last of all. We start by giving the general idea of the poem and before any further contact with the poem is made, the teacher writes up on the blackboard the words which are new and also useful, strictly excluding those that are uncommon and rarely used in everyday language. The students then work in groups of 4-6 and find out their meanings with the help of dictionaries.

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*Jean Forrester *Teaching without Lecturing*, Oxford University Press, 1968

The next step of the course is loud reading of the poem by the teacher who reads it twice, carefully, with rhythm and intonation while trying to find out the main idea of the poem The teacher then puts a few general questions to the students to find out if they have got the main idea. This is followed by a third reading which the students follow in their books.

After this stage starts the detailed study of the poem done as far as possible by questioning which may be oral or written on the blackboard or cyclostyled and distributed among the groups. These questions being simple and short, one-word answers would be quite acceptable. More over, the questions may fetch inferential and informative answers. The teacher puts in a comment only when found absolutely necessary. The same applies to explanations which ought to be as brief as possible. Last of all, the difficult parts are taken up and dealt with in the same manner.

A short poem like 'The solitary Reaper' by Wordsworth may be done at one sitting but one may well ask : How do we deal with longer poems? The methodology would remain the same though in the latter case we would have to deal with the poem in 'units'. These units will be divided on the basis of 'sense' rather than on the basis of stanzas alone.

Once the detailed study of the poem is over, it is time to enjoy the piece. Chorus reading may be done where the students read the poem after the teacher line by line or according to the punctuation. Very soon they follow the rhythm and intonation and can read in small groups while the teacher gives them the beat. The students enjoy it immensely. To my utter surprise, they often want to do more by way of poetry than in any other form of the language. The situation stands out in sharp contrast to the usual woeful cry that poetry is one of the many unpalatable and boring areas of teaching and learning. This reading aloud of the poem after it has been studied gives positive reinforcement to the understanding. On the other hand, it recalls in your mind the pathetic picture of a student trying desperately to read a strange and unfamiliar poem without a little unnecessary and avoidable embarrassment to himself, his classmates and the teacher.

A last word about the explanations that are given. These should be as brief as possible. In fact, one would agree with Jean Forrester that "the amount of explanation necessary is a good guide to the suitability of the poem for the level of the student. If more than ten per cent of the poem has to be explained that is the meaning cannot be elicited by questioning, it is unsuitable and ought to be left alone". It would be true to say that there is no point in explaining poetry. It must make its own appeal. Carefully planned questions have a catalytic effect—any poem would come to life. □

Teaching of English Language

The Role of Testing

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NOBODY will perhaps dispute the fact that the role of testing in any teaching programme is central, but it is not fully realized by many teachers today Teachers of English are even more indifferent to it than others. One cannot blame the teachers alone for this , the students are no less to blame. Their attitude to periodic class tests is not very encouraging. Many treat them as a nuisance and a sheer waste of time; and I am sure that if the internal evaluation is not there to force them they will never work for them. Is it because they do not properly understand the purpose of these tests, or because they are not quite in sympathy with that purpose? The old system in which the annual examination alone determined the fate of the students left them free for greater part of the year, as they could hope to pass the examination by working for two or three months before it. But the new system with monthly tests and internal evaluation curbs that freedom very much and requires constant work. I do not know how much the students like it. If we look at the teachers they do not seem to care much for the kind of feedback these tests provide

Let us ask ourselves how many of us analyse the test results carefully and decide on the future course of our teaching in the light of them. Do we use these tests to assess carefully the future needs of our pupils, and see how much remedial teaching is necessary to fill such gaps in our pupils' knowledge as are revealed by the test results ? More important than that, do we even frame our tests so carefully as to find out exactly what has been, and what has not been achieved? The construction of a test is as important as the use of it, and this is more important in teaching English language than in anything else. But there has, unfortunately, been only callous indifference in this regard so for , so the result has been quite damaging. With no proper checks at successive stages of learning, and with little attention paid to the feedback and remedial teaching, the quantum of non-achievement has mounted so high that today one who goes about flaunting a degree from an Indian university does not have the achievement level of even Class X, as far as English is concerned.

Achievement Tests

What is to be done to remedy this situation ? My simple answer at the moment is : Put more emphasis on testing and impart to the teachers some skill, if they do not have any, in how to construct valid and reliable tests for measuring the progress of the students from time to time, and in how to analyse their results to determine, in the first instance, how much of what has been taught, has not been achieved and then to see how effective a particular teaching method, or a set of materials has been, in teaching a set of language items. Test results can throw light on all these things. Tests have various uses Alan Davies lists only four : achievement, proficiency, aptitude and diagnostic. To a teacher of English, achievement and diagnostic tests are extremely important in the present situation. Achievement tests aim at assessing what has been learned of a known syllabus. They may be used for other purposes as well, but their main interest lies in judging the past course of question, its success and failure, i.e. what has or has not been achieved as a result of a particular teaching operation. In that case every periodic test is, in fact, an achievement test which gives a teacher the necessary information as to how successful or unsuccessful his teaching has been and also makes the students aware of what they have not yet achieved. Such tests have to be part and parcel of the teaching process if steady progress is to be aimed at. They should be administered quite frequently, may be after each lesson, if sufficient time is there.

Diagnostic Tests

A diagnostic test is slightly different from an achievement test. It is mainly concerned with the absence of a skill in the learner. That is to say that it tends to discover what has not been achieved by him over a period of time and could, therefore, also be called a non-achievement test. In Davies' words. "It may look before and after; before to find out what is wrong with the previous learning, after in order to do something about it in the form of remedial work". A diagnostic test may be built out of the teacher's own experience, or any other evidence such as from error analysis that suggests what has not been learned. It is not based on the sampling of a particular syllabus. Areas of interference between the mother-tongue and the target language may be used for diagnostic purposes, if they predict errors. Certain intralingual factors like over-generalization, reduction, etc., that are likely to cause errors, may also be taken into account. Once we have done this kind of exploratory work, and determined the likely areas of errors, we can safely build our diagnostic tests out of these. We can surely extend them as and when we come across other types of errors.

Diagnostic tests are absolutely necessary today. I must say, as most of the people who use English for various purposes have an inadequate command over it. The gaps in their English are so many and so serious that a lot of remedial work is necessary to bring them up to an acceptable level. That requires diagnostic tests to find out exactly where those gaps lie, and what that nature is. Such tests may be used not merely with the students, but even with those who have completed their education, but with an insufficient command of English. Error analysis by itself will not truly reveal the exact state of the learner's competence, as in free writing on which error analysis is mostly based, the learner may easily avoid the areas of his weakness. Nor will even a close contrastive analysis of the mother-tongue and the target language correctly predict all the errors.

Need for the Valid and Reliable Test

I would, therefore, conclude by re-emphasizing the need for more and more tests, as I consider them to be the most vital factor in a teaching programme that works towards some targets Now the qcuestion is whether we can fulfil this need Are we in a position to devise valid and reliable tests for the purposes referred to above ? I don't think many of us are. In fact, testing is a special skill which can be acquired only by constant effort and training. While one may easily construct any number of ad hoc tests, it requires tremendous amount of skill and effort to construct valid and reliable tests (By a valid test I mean a test that measures that which it is supposed to measure, and nothing else, and by a reliable test I mean a test I mean a test that measures whatever it does accurately.) Then, analysis of the test results for further use also requires a special skill. Unless the teachers of English realize the central importance of testing, and equip themselves with the necessary skills in that regard, teaching of English language will not be able to get out of the sorry state in which it lies today □

Development of School Science Curricula

An Approach

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INTRODUCTION

AS IN OTHER AREAS of school learning, the curricula in science also need reorganization. This need emerges from the planned efforts at the national level to initiate desirable changes in educational practices at school stage. Structural changes like introduction of the new pattern, stress on vocationalization in school curricula in general, are a few indications of such changes. Salutary effect of these changes will not be sustained unless they are accompanied by appropriate curricula. Due to the influence of science on modern life, consideration for reorganization of science curricula becomes an urgent task for the educational planners. Reorganization of science curricula involves a careful examination of the goals of teaching science, provision of appropriate learning experiences and the scientific evaluation of these processes in a systematic way. To show how each of these processes should be carried out through experimentation to develop suitable science curricula at the school level is the theme of the present paper.

OBJECTIVES

Different Domains

Curriculum development begins with the formulation of instructional objectives. To attain these objectives, appropriate learning experiences are to be provided. This totality of experiences constitutes the curriculum. In this operation of curriculum development, the basic principle is to have close correspondence between objectives and learning

Table 1

INTER-RELATIONSHIP BETWEEN OBJECTIVES, LEARNING EXPERIENCES AND EVALUATION

Physical and Chemical Change

Evaluation	*Procedure*	*Objectives*		*Learning Experiences*
1 Recall items	← O_1	1 Recalls the concept of change	O_1L_1 →	1. Recall a few situations from daily life where changes occur, e g rusting of iron movement of a car, burning of wood, decaying, evaporation of liquids... .
			↗ O_2L_1	
2. Recall items	← O_2	2 Recall the concepts of physical and chemical changes	O_4L_2 → ↘ O_2L_3	2 Give the pupil a few tubes marked A and B salt, C, sodium carbonate D, calcium sulphate, i e. four different substances. Ask pupils to mix A with B, C with D, A with C, A with D, B, C, and B, D. These experiments give direct experience of some changes. (Please refer to objective 4)
3. Give the pupil a set of substance to mix and let him find out whether the change is physical or chemical	↙ O_3 ↙ O_4	3 Discriminates a chemical change from a physical change	O_3L_3 →	3 From the direct experience and the situations recalled from daily life, try to classify the changes where the substances remain the same (chemically, i e chemical properties of the substance are not altered) and change when the substances change to new substances
4. Evaluation of the report of the project assigned	← O_4	Peforms skilfully the experiments involving these changes	↘ O_4L_5 ↘	4. Question the pupils to evaluate their understanding of the concepts
5. Experiments involving such experiences where pupil has to withhold his conclusion till he tests all possibilities	← O_5	5. Analyses the occurrence of events to reach a conclusion of the change being physical or chemical	O_5L_6 {	5 Allot a few experiments for pupils to perform after their understanding of concepts
		6. Identifies changes around him as physical or chemical		6. Assign pupils to look around and judge the changes taking place as physical or chemical

experiences with a concurrent process of evaluation to ensure this relationship. Success of the curriculum developed as suggested above, can be judged in terms of the extent to which the teaching-learning situations reflect this relationship between objectives and learning experience. Table 1 shows how an individual unit of instruction will accommodate this principle.

In the Table the arrows between objectives and learning experiences indicate that a particular objective may be realized by providing more than one learning experience. Similarly, a single learning experience may contribute to the realization of more than one objective. In the same way, arrows between objectives and evaluation techniques indicate a mutual relationship.

Formulation of instructional objectives being the first step in curriculum development, examining them in greater detail would be pertinent here. In any teaching-learning situation, with respect to an instructional unit, there will be a large number of instructional objectives which are in accordance with broad objectives arrived at for a course of instruction through the process of curriculum development. These broad objectives represent different dimensions of human development and as such they cover the entire range of instructional objectives possible in any unit of instruction. In formulating objectives for a particular unit, the broad curricular objectives ensure that no dimension of human development is overlooked Now, the question arises as to how these broad objectives are arrived at for a course of instruction With regard to science curriculum a careful examination of all aspects of human development will lead to the categorization of objectives of science teaching into three domains. These are: Domain I, cognitive abilities and skills; Domain II, scientific attitude; and Domain III, social sensitivity Stated differently, these domains of objectives would mean science for action, science for enquiry and science for effective citizenship.

Domain I

The knowledge of the environment is fundamental to its understanding. Besides knowledge and understanding, other cognitive abilities like analysis, synthesis and evaluation are also the basic aspects of this domain. The result of developing these cognitive abilities would be that when a pupil is faced with a problematic situation, he analyses the situation, synthesises its components making use of the knowledge of facts, concepts, principles and events occurring in daily life in this specific situation. Of course, he evaluates when he selects from among several alternatives for solving problems. Besides this, the pupils should acquire skills of observation and manipulation of things around him in the environment Skill in observation would mean precise, accurate and detailed study of facts, phenomena and events in the environment Manipulation skills refer to those which are concerned with handling objects and equipments.

Domain II

In this domain scientific attitude is in the focus and for its development cognitive abilities and skills developed in Domain I act as the foundation. If the generalized ways of doing things and knowledge acquired are to be used rightly, certain affect qualities are required, viz. curiosity, open-mindedness, objectivity, criticality, etc. When these affect qualities support cognitive abilities and skills, a person develops the scientific attitude which can be transferred to his daily life situations. The validity of this statement will be evident if the instructional situation in the school is examined as to how the pupils develop attitudes. Instruction given in the school aims at, *inter alia*, developing this scientific attitude towards ways of life. The knowledge given through instruction is utilized for developing attention and comprehension by the pupils so that they accept the knowledge through their own analysis. Such knowledge will become a part of the pupil himself and, therefore, would exist even when he leaves the formal education programme. The scientific attitude here is not limited to specific instructional situations like carrying out an experiment, finding the cause-effect relationship with regard to a scientific phenomenon. The domain is more comprehensive in that it includes the qualities of keenness and objectivity in observation, urge to collect evidence, etc. in all spheres of daily life.

Domain III

In this domain of objectives the development of social sensitivity in pupils is of primary concern. Social sensitivity here would mean that an individual is aware of developments in science and technology, and the impact of these on the life of people in a given society, and thereby develops a social outlook to these happenings. A socially sensitive individual would understand his material environment created through the applications of scientific principles and concepts. This understanding would enable the individual to exploit resources in the environment to meet his needs, and at the same time he would develop appreciation for problems in social life created by scientific advancements. Development of social sensitivity will take into its fold inculcation of certain values for group life and group activities.

LEARNING EXPERIENCES

For the achievement of instructional objectives stated above, appropriate learning experiences are to be identified. This process of identification of learning experiences will be guided by a basic principle of curriculum construction. The principle would be that of taking the environment as the context from which the learning experiences are to be selected. This would mean analysing different events and phenomena in the environment, and arriving at the sets of principles and concepts underlying the occurrence of these. Through this exercise of analysis the curriculum-developing team would be faced with the problem of discerning which sets of concepts and principles are to be given. While tackling this problem, the team shall have to apply some value-judgement with regard to this selection of the concepts and principles which would mean allowing some sort of arbitrariness in the process. This arbitrariness would, of course, be much lessened by entrusting this task to a team rather than to any individual. The curriculum team will, at this stage, have to resolve certain issues. First, analysis of various environments would result in different sets of concepts and principles in a country like India with wide geographical variations. In order to resolve this issue, the team may have to find three main sets of principles and concepts—one set containing those which commonly occur in all environments, and another set of those which are specific to particular environments. The following are a few illustrations :

Set 1 : Concepts like, oxidation, combustion, expansion-contraction, fertilizers, solubility, purification of water, etc.

The attribute of Set 1 is that the concepts are common to all environments.

Set 2 : Concepts like, extraction of metals in different parts of the country, fertilizers being manufactured on a large scale in different parts of the country, sun-rise and sun-set in different parts of the country.

The attribute of Set 2 is that the concepts occur in specific environments but have a parallel in other environments too.

Set 3 : Concepts like, anomalous expansion of water formation of snow (for pupils in regimes of the country. Formation of mirage (for pupils living in non-desert areas).

The attribute of Set 3 is that the concepts occur in a specific environment but are exclusive to that environment only.

Concepts and principles of the first set would get priority over those in the other sets, mainly because they meet the needs of an individual to deal with his immediate environment effectively. At the same time, concepts and principles in second set connot be altogether ignored. They will have to be included in the curriculum on a differential basis according to the needs of individuals in particular environments. In addition to these, certain significant principles and concepts drawn from the events and phenomena in other environments will be given due place in the curriculum to enable the individuals of an environment to understand and appreciate these. Second, a natural corollary of the first issue will be that of deciding as to which sets of principles and concepts are to be included in the curricula in terms of environmental characteristics like rural-urban settings, social classes, etc. It may be noted here that these present special cases of the first issue and, therefore, would be resolved along the lines suggested earlier. Third, the three categories of sets of concepts and principles arrived at through the exercise just described, will have to be sampled for various grade levels. At this stage, the curriculum team will have to decide, (*i*) which concepts and principles are to be introduced at which grade level, and (*ii*) which ones are to be terminated at which level. Over and above this, the selection of concepts and principles over successive grade levels would demand the specifications of treatment of these for each levels separately. With regard to a particular concept or principle, several instances under different-environments may be found in which it is operative; this means that the curriculum-developers would have to indicate variety of experiencs which would cover possible range of experiences representing a principle or concept in different environments. Provision of these alternative learning experiences would be necessary from the point of view of the individual teachers operating under different teaching-learning situations, who may utilize appropriate experiences for attaining specific instructional objectives.

From the above, it can be seen that in the process of identification of learning experiences, the curriculum developing team will first have to select the principles and concepts in the context of the environment. What kind of experiences are necessary for learners to understand these principles and concepts will constitute a set of learning experiences. The curriculum team will decide the appropriate learning experiences on the basis of the objectives regarding the selected principles and concepts.

It may be noted here that a single event or phenomenon will have more than an underlying concept or principle needed to understand it in its entirety. These concepts and principles, all of which taken as a whole contribute to an understanding of the event or phenomenon, may pertain each to different aspects of the events or phenomenon, in other words to the physical, chemical or biological aspects of the phenomenon or event. Hence, for a general understanding of the event or phenomenon, it may be necessary to present experiences relating these to one or more than one aspect of the phenomenon or event All these experiences irrespective of the aspect they deal with, in so far as they all go together to help the pupil develop a general understanding of the event or phenomenon would be a cluster of experiences The example of *Water* in Table 2 may be considered here as an illustration.

Table 2 is a representation of how curriculum-developers could evolve learning experiences for varied environmental backgrounds. Column 1 contains the concepts and the aspects which may be considered important for the general understanding of the event or phenomenon. Within brackets are indicated those concepts which may be pursued by students at higher grades. Column 2 indicates the general objectives which would be attained after the exposure to learning experiences, in any environmental background against those indicated within brackets would be restricted to higher grades. Column 3 indicates the behavioural objectives expected to be achieved after the presentation of learning experiences. There is a close relation between the two as has been illustrated earlier that, only when a particular learning experience is given to pupils, a particular objective can be attained Column 4 contains the learning experiences for pupils in order that the general objectives be attained. Column 5 indicates the environmental setting which would be needed to provide the learning experiences From the Table it may be seen that concepts for higher level is Id, IIg, IIId, IVf, IVg, Vb, details of VI. Concepts for lower levels which would all contribute to a general understanding of the unit "water" are, Ia, Ib, Ic, IIa till IIf, IIIa to IIIc, IVa to IVe, Va, details of VI

In order to identify adequate and meaningful learning experiences for science teaching the curriculum team cannot confine its programmes to the formal system of schooling alone. Teaching of science has to be, therefore, taken in a wider context in which programmes within and without the school would contribute in a concerted manner. The curriculum development them will, therefore, identify and develop learning experiences or at least define the scope even for other media of education, viz. radio, newspaper, television, magazine, etc. It may be mentioned here that the experts from these fields will also be involved in the programme of curriculum development. Since the main purpose of science teaching at school level is to enable the pupils to understand the environment, learning experiences have to

Table 2

MODEL OF LEARNING EXPERIENCES IN RESPECT OF THE UNIT—WATER

Concepts, Principles, Facts, etc.	*General Objective*	*Behavioural Objective*	*Learning Experience*	*Environmental Background*
I Occurrence				
(*a*) How is water distributed on the earth's surface ?	Knows the occurrence of water on the earth's surface.	States the distribution of water on the earth's surface.	Explains with the help of a map. Listens to a talk on the occurrence of water in animals and plants	Any environment Wherever possible
(*b*) What is the water content in the body of man?	Knows the occurrence of water in plants and animals.	Draws a diagram of the distribution Names a few plants which have a water content.	Experiments with certain plants to infer their water element	Any environment
(*c*) Does water occur in plants too ?		Names a few substances having water content.	Experiments according to a prescribed procedure.	
(*d*) (Occurrence of water in some chemicals.)	Knows the water content in chemicals.	Writes the percentage of water in animals. Identifies substances containing water. Writes the number of water *molecules in any hydrous* substances.		Wherever possible
II Properties of Water				
(*a*) Water finds its own level.	Knows properties of water	Illustrates the principles that water finds its own level	Pours water in multi-dimensional vessel and observes	Any environment
(*b*) Water flows from higher to lower level.	1. Finds its own level.	Illustrates the principle that water flows from higher to lower level	Observes water during rains on roads.	Any environment
	2. Flows from higher to lower level.		Observes a flowing stream	Where available

Concepts, Principles, Facts, etc	*General Objective*	*Behavioural Objective*	*Learning Experience*	*Environmental Background*
(*c*) Water takes the shape of the container	3. Takes the shape of the container.	Illustrates that water takes the shape of the container.	Observes that tanks are situated at higher level and generates water to lower level	Where available
(*d*) Pure water is colourless and tasteless	4. Is colourless and tasteless	Infers that pure water is colourless and tasteless	Pours water in containers of different shapes and observes	Any environment
(*e*) Density of water is 1 gm/cc	5 Has density 1 gm/cc.	States that the density of water is 1 gm/cc	Observes distilled water.	Any environment
(*f*) Water is a solvent for many substances	6. Is a solvent for many substances.	Measures one volume of water weighs accurately the volume of water.	Tastes distilled water.	Any environment
(*g*) (Solubility)	7 What is solubility ?	Calculates the density of water, mixes substances with water, stirs and concludes.	Measures out one volume of water in a measuring cylinder in any measure	Any environment
	8 (Solubility)	Names a few substances soluble and insoluble in water from a group of substances	Weighs the measured water.	Any environment
	9. (Determines solubility)	Defines solubility	Dissolves substances and concludes	Any environment
		Experimentally determines the solubility of substances	Carries out solubility experiment as per the procedure outlined	Where equipment is available
		Draws the solubility curve		
III. States of water				
(*a*) Freezing	Knows there are three forms of water	Names the three forms of water.	Sees the three forms of water through his experimentation	Any environment

Concepts, Principles, Facts, etc	*General Objective*	*Behavioural Objective*	*Learning Experience*	*Environmental Background*
	Knows what is freezing, fpt.	Defines freezing (freezing point).	Observes water freezing to ice in a refrigerator	Where available
(*b*) Melting	Knows what is melting, mpt.	Defines melting (melting point).		
(*c*) Boiling	Knows what is boiling. bpt	Defines boiling (boiling point)		
(*d*) (Latent heat involved in change of state)	(Knows latent heat of fusion)	Defines the latent heat of fusion	Reads the freezing point	Any environment
	(Knows latent heat of vaporization).	Defines latent heat of vaporization.	Experiments by boiling water and observes it change to steam.	
			Heats ice and observes it change to water.	Any environment
		Explain the procedure of determining		
		(*a*) latent heat of fusion	Notes the temperature involved in changes.	
		(*b*) latent heat of vaporization	Experiments according to a detailed procedure	Where equipment is available
		Calculates data related to latent heat.		
IV. Purification				
(*a*) Purification	Knows what is meant by purification of water.	Explains the concept of purification.	Observes impurities in a sample of impure water	Any environment

Concepts. Principles, Facts, etc	*General Objective*	*Behavioural Objective*	*Learning Experience*	*Environmental Background*
(*b*) Why water is purified ?	Knows how water is purified	States the reasons for purification of water.	Observes a sample of distilled water.	Any environment
(*c*) How water is purified for domestic purposes ?	Appreciates the benefits derived through the purification of water	Describes the processes of decantation, filtration, distillation, boiling	Observes water used for industrial purposes	Industrial area
		Describes the water purification plant and how water is purified through this.	Identifies through experiments the differences in water used for industrial and drinking purposes.	Environment where both samples are available
(*d*) How water is purified for industrial purposes ?		Writes a report of his visit	Decants muddy water.	Any environment
(*e*) How water is purified on a large-scale for drinking purposes ?		Differentiate drinking water from industrial water in terms of its constituents	Filters water containing impurities and observes how it gets clean water distils by boiling water,	Any environment
(*f*) (Chemical reactions of the process of purification).	(Knows the chemical reactions in the process of purification).	Writes the chemical reactions involved in softening water.	Visits the water purification plant	Where available
			Writes a report of his visit.	Where available
(*g*) (Chemical equations involved in these processes)	(Knows to balance the chemical equations involved in these reactions)	Balance the chemical equations representing the reactions	Arranges a representation of equipment.	Any environment
			Listens to a talk of need for purification of water	Any environment
			Observes water being flushed out and being refilled in a swimming pool	Where available
			Observes through experimentation that salty water does not clear as well as pure water	Where available or can be prepared

Concepts, Principles, Facts, etc	*General Objective*	*Behavioural Objective*	*Learning Experience*	*Environmental Background*
			Observes that doctors use distilled water for cleaning equipment	Local clinic
			Observes chemical reactions involved in softening, exercises on writing and balancing of reactions	Where equipment is available
V. *Water as the living kingdom*				
(*a*) Importance of water	Knows the importance of water to life.	Writes a para with examples, inferring the importance of water to life	Listens to a lecture on the importance of water.	Any environment
(*b*) Process of life sustenance through osmosis, diffusion.	Knows how water is processed in living beings.	Explains the processes of osmosis, diffusion in plants, animals.	Conducts experiments on osmosis and diffusion as per details outlined	Any environment
VI *Uses of water*				
(*a*) Industrial	Knows a few industrial domestic and agricultural uses	*Lists a few* uses of water in industrial, domestic and agricultural spheres of life.	Prepares a report through his reading experience and conference with concerned people on the use of water in various spheres.	Any environment
(*b*) Domestic	Knows in which part of industrial, domestic or agricultural appliances water is used.	Identifies the property of water in a particular appliance.	Analyses of appliances to identify property of water used in it	Any environment
(*c*) Agriculture.	The property of water being used in these appliances	Explains energy conversion.	Visit the hydroelectric plant.	Where available
(*d*) Hydroelectric projects.	Conversion of energy			
			Listens to a resource person	Where available
			Sees a film on conversion of energy	Where available

be clustered so that all concepts and principles underlying a particular event or phenomenon are covered through such clustering. These clusters of experiences will, obviously, cut across different branches of science, and when presented would demand an integrated approach to science teaching with indepth treatment of events and phenomena over successive grade levels. This would mean that while events and phenomena will govern the teaching of school science throughout, this approach would imply that these events and phenomena are treated for the general understanding of them by the pupils at the lower stages whereas the same events and phenomena will be studied in details of the underlying principles and concepts at the higher stages. This detailed treatment of the principles and concepts in science would result in pupils' perception of science with distinct sets of concepts and principles constituting the physical, chemical, and biological aspects of praticular events and phenomena. It would be at such a stage that pupils would be in a position to see the structure of each discipline, viz. physics, chemistry, and biology, in the total perspective of scientific knowledge. Seeing these as separate disciplines would develop in pupils the mental outlook needed to receive specialized knowledge categorized as different subjects of study or disciplines at the post-school stage. One more consideration while providing learning experiences would be to present them in relation to other disciplines, viz. social sciences and humanities so that objectives of third domain may be realized This would demand that curriculum-developers, at the stage of identifying learning experiences for selected principles and concepts in various disciplines, decide as to how the learning experiences pertaining to principles and concepts under different disciplines relate with each other. On the basis of the commonality, thus arrived at, the organization of learning experiences would be indicated. Soils, heavenly bodies, land and sea breezes are topics in geography which could be referred to in the teaching of science. The biographies of scientists which may be taught in the English class could be related as and when their inventions are taught in the science class. The industrial revolution in history indicates that scientists and their inventions too are a part of history. These inter-relations indicated by the curriculum-developers would serve as concrete guidelines for the teacher to organize and present learning experiences effectively.

ORGANIZATIONAL ASPECTS

Curriculum development as outlined above would have certain implications. The first implication would be about the formation of the curriculum team. This team would involve personnel from science and other disciplines. These personnel would be experts in the subject-matter of respective disciplines, methodology experts, practising teachers, researchers and persons engaged in private and public organizations like corporations, panchayats, hospitals, and industries. The learning experiences for the selected principles and concepts identified by this team will have to be tested empirically for their suitability in terms of the attainments of objectives, feasibility of organizing these learning experiences and adequacy of instructions to teachers regarding selection and organization of experiences in different environments. Although the curriculum development team would constitute experts from different fields, the team would perhaps, operate in an effective manner if some selected schools are made as the centres for trying out what has been developed. The criteria for selecting these experimental schools, would be that they represent wide and varied environmental conditions since the proposed curriculum takes into consideration the environmental differences. In order to seek empirical evidence for the suitability and adequacy of the proposed curricula under different environments in real teaching-learning situations, it would be necessary that the proposed curricula are treated as the programme of instruction to be pursued by the selected schools even if it differs from what is prescribed by the Directorate of Education Moreover, schools should be able to organize evaluation procedure and even the certification in a way that may be conducive to better organization of learning activities under the proposed curricula. These would be facilitated if these experimental schools are given the status of autonomous schools with full academic freedom of operation with regard to curriculum, teaching-learning activities and evaluation. This freedom of operation will provide better scope for bringing out better integration and articulation of the proposed curricula over different grade levels.

For carrying out the experimentation of implementing the proposed curricula effectively'and efficiently, selected schools would have to be adequately equipped with suitable personnel and the necessary instructional material. Members of the curriculum team, as and when needed, would be available for working with the personnel of the experimental school. The teaching personnel in these experimental schools which would include not only science teachers but also teachers from other disciplines would have to be adequately oriented for carrying out the task of implementing the curricula in an effective manner. In the proposed curricula, it is visualized that the teachers have to select and organize appropriate learning experiences in the light of objectives already spelt out in the curricula or any other which the teacher may think fit. Orientation given to teachers will prepare them to perform this expected role. Through the process of teaching involved in the implementation of the proposed curricula, some questions are attempted to be answered, some problems are endeavoured to be solved in terms of concrete behaviours of the teachers and pupils in the teaching-learning situations Teaching taken in this content involves research. In order to facilitate this research aspect, additional personnel could be involved in teaching, who might be research fellows, teacher fellows, pursuing their research work in the field of curriculum development and teaching. Involving research personnel for this purpose should be the main function of organizations like the National Council of Educational Research and Training (NCERT), University Grants Commission (UGC), Indian Council of Social Science Research (ICSSR) and other institutes engaged in promotion of educational research and development. These organizations should shoulder the responsibility of initiating the process of curriculum development along the lines indicated at selected experimental schools which should be located in different environmental conditions in the country. In fact, from the very genesis, NCERT was wedded, *inter alia,* to the task of curriculum development through experimentation. At a time when thinking is going on to evolve national curricula, a significant step towards this direction would be the undertaking of an experimental project of developing science curriculum in the way that has been proposed.

With the recent trend of granting autonomy to selected schools in the country as evidenced in case of the Vidya Bhavan Experimental School, Udaipur, and Banasthali Vidyapeeth High School, the operational feasibility of the proposed process curriculum development is assured. Although granting autonomy to schools would facilitate experimentation in curriculum development, there would be an urgent need for these schools to operate in close and continuous collaboration with personnel and organization involved in the process. The nature of collaboration with these selected schools on the part of the organizations like NCERT, ICSSR, UGC and universities would be to depute the concerned personnel to the schools to form the curriculum team for carrying out the actual process of experimentation.

Curriculum development as proposed here, takes the environment as the base for specifying teaching-learning activities Such being the case, detailed knowledge of different environments in terms of the events and phenomena occurring in the environments, the resources available in these environments, both human and material, the development programmes that the community has in view which are expected to be realized in a short time, are of necessity to be known by the teachers This would help them proceed with the implementation of the proposed curriculum as suggested by the curriculum team. In this connection, the extension services department attached to universities should undertake the responsibility of providing such necessary information. In fact, they could make a detailed assessment of the environment to provide the data regarding aspects of curriculum development mentioned above to the curriculum team, which would then be in a position to suggest learning experiences on the basis of these data. Such an assistance rendered by the extension departments, would imply that the spade work for curriculum development by this activity of assessment of environments, demanding a close cooperative effort by the curriculum team and the extension departments, in which the extension departments act as resource centres. The establishment of these resource centres may not be a difficult task since already there are enough extension service departments in various parts of the country. To build up these resource centres, the extension departments will have to identify suitable talents from among the school staff within their jurisdiction who could be utilized for this purpose. The resource centres would have to work continuously even after initial data have been provided to the curriculum team since the environment is subject to changes which may not even have been anticipated at the initial stages The resource centre will thus have the latest record of the environment and feed teachers with necessary information regarding the environment as and when they demand such information. The data thus obtained would be included in the teacher's manual which, besides this knowledge of the environment, would include necessary instructions to carry out the teaching-learning activities specified in the curriculum developed for different environments. Initiation of preparing teachers' handbooks in science have already been made by the NCERT. Experience gained from the process of curriculum development in the proposed manner, will further the enrichment of such handbooks.

EVALUATION

Evaluation of the curriculum developments according to the proposed scheme will have two aspects. One, evaluation of the curriculum from the point of view of teaching-learning. This means that evaluation procedures would assess suitability of objectives and the corresponding learning experiences. Two, evaluation of the curriculum development as a process which means establishing the validity of each step of the process as well as the workability of the total programme.

The whole evaluation scheme can be seen as having three stages, viz. preparation, tryout and follow-up. At the preparation stage, the curriculum team will in the main, assess (*i*) adequate representation of broad objectives, (*ii*) sufficient linkage of principles and concepts with background events and phenomena, and (*iii*) feasibility of learning experiences. In order to make the evaluation more scientific, the draft curriculum prepared by the team may be examined for its validity by knowledgeable persons from all fields relevant to curriculum development selected from all parts of the country. Evaluation in the tryout stage will provide empirical evidences regarding suitability of the proposed curriculum, and facilitate bringing out specific details for the effective organization of the learning experiences. It is through this actual run of the proposed curriculum that an operational structure would be evolved for its implementation. The evaluation data obtained at the tryout stage would be utilized in making the curriculum ready for implementation at large scale. Curriculum development being a continuous process, it would be necessary to receive further information and evidence about its workability from various sources, viz. teachers, students, administrators and community members as well. On the basis of this follow-up, evaluation data, continuous appraisal of the curriculum would be carried out to make it better suited. In fact, this multi-source corroborative data are a definite indication of the validity of the curriculum.

CONCLUSION

The organization of science curricula as proposed here, with detailed examination of all stages involved in this process, indicate that an experimentation with this programme would be a valuable and productive task to meet the needs of new pattern of education. The experimentation over a period of time would result in a research based curriculum which represents a national character, yet is coloured with specific environmental variations, which having been subjected to modification to meet felt needs, fits the requirements of modern life. □

Does Creativity Influence Academic Achievement ?

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THERE ARE so many definitions of creativity (Taylor, 1959 , Torrance, 1965 ; Guilford, 1967, etc.) and in spite of the enormous amount of psychological research on creativity in recent years, there is today, as in the past, little conceptual agreement on as to what creativity is. It is most often conceived to be ability to bring something new into existence. Yet others think of creativity not as an ability but rather as the psychological process or processes by which novel and valuable products are created. For others, creativity is not processes but the products. Anyway, creativity is a capacity which can express itself in all areas of life and it is not only artistic, it is a specific way of thinking, of handling information, of observing things, of behaving and of reacting. As described by Guilford (1966). "Creativity is the key to education in its fullest sense and to the solutions of mankind's serious problems" There are no two opinions regarding the importance of this valuable talent. Rasool 1977) has described that scientific researchers gave us an idea that all of us are born with creative potential and if given proper environment and techniques, this potential can be recognized, nurtured and measured. Thus creativity is not a monopoly of a few, if opportunities are provided everyone has the potential to be creative in his own way (Mathur, 1977). We are to see here, whether this inborn creative potential is being recognized, nurtured and measured by our society and educational system. Does creativity in reciprocatory terms, influence the academic achievement of the students ? In other words, do high creative students perform better than low creative ones on academic achievement tests when the effects of intelligence are held constant ? Let us examine these factors from the viewpoints of the persons working in this field and the empirical investigations of the phenomenon.

Creativity and Society

Kaltsounis (1973) has stated that more and more researchers are beginning to think that some degree of creativity comes naturally to all of us, but somewhere along the line—parents, teachers, the corporation—all the factors in that much used word, society, gradually grind it out of us According to Stoddard, "The urge to inquire, to invent and to perform is stifled in millions of school children. Conformity rules, not because people crave for it, but because the fear deviation" Toynbee quoted by Ahmed and Jafri (1973) has emphasized that to give a fair chance to potential creativity is a matter of life and death for any society. Torrance (1965) has shown that in all' the five cultures, which he investigated, including USA, Germany, India, Greece and Philippines, the cultures tended almost unanimously to disapprove strongly the properties like, question-asking, guessing, getting preoccupied with task, having the courage of one's convictions, disturbing classroom procedures, being emotionally sensitive, being independent in judgement and thinking, being intuitive in making associations, being willing to take risks and finally, being unwilling to accept 'authorities say so'. On the other hand, all the five cultures were almost unanimous in encouraging : being willing to accept the judgement of authorities being obedient, being industrious, getting work done in time and being considerate to others. Cropley (1967) has described that although different theorists describe in different ways the mechanism by which parental and cultural ideas of what is right are transmitted, parents tend to pass to their children a set of notions concerning 'right' and 'wrong' behaviour, and this set of notions tends to modify the ways in which the child is prepared to act. Furthermore, the views held by parents are culturally derived, and tend to reflect the value-systems current within a culture. This state of affairs is particularly unfortunate where creativity is concerned, as the very behaviours, which are necessary if creative productions are to result, are severely frowned upon in most of the cultures, and are, therefore, not prized by conventional parents. On the whole, the society does not approve the creative potential. To get creativity viewed as a whole, we must make it mean more to each person. Our cultural values do not permit an individual to express his creative potential, rather is taken as a threat to the whole cultural set-up.

Creativity and Educational System

Ebel (1969) has stated that there is some reason to believe that educational system can reduce originality and creativity. This negative effect on creativity is most marked when examinations, instructional materials and processes all emphasize learning by rote and the goal is centred on getting through examinations. Anderson has described that creativity was in each of us as small child, among adults it is almost non-existent. The great question is . What happened to this enormous and universal human resource? The answer lies in the system of education, which is concerned mainly with acquiring a body of knowledge, memorizing facts, and finding answers to problems—all of which are already known to someone else —rather than with creativity. Khire (1977) has remarked that the present educational techniques and curricula aim to meet the requirements of developing a specific kind of cognitive ability-intelligence. Free, flexible and original thinking, which often departs from the set pattern, does not receive due respect. Lefrancois (1972) has emphasized that the teachers are rigid, rule-bound and authoritarian. They stifle creativity in the students by insisting on excessive conformity to arbitrary regulations, giving high grades for neat correct unimaginative solutions, to problems executed and reported in exactly the prescribed manner and by refusing to admire the mistakeful gropings of a child reaching towards the unknown Ahmed and Jafri (1973) has pointed out that unfortunately teachers have to work under various constraints One of these is syllabus which contains a lot of dead-wood but it has to be covered in its entirety. Another is the examination system which puts a great premium on memory and factual knowledge. Examinations mould the teaching methods and the standard techniques employed in the classroom drill and grill. It is, therefore, hardly surprising that teachers and educators rate the industriousness of their good students much higher than their independence. All qualities—independence, non-conformism and curiosity suffer on account of uninspiring teaching methods. There is no regard for those students who may be different or who may play with wild and imaginative ideas. Few teachers seem to be aware of the potential creativity of their students and fewer still would dare to encourage it. Mathur (1977) has mentioned that it seems by our routinized *trained teaching*, consciously (*a*) we do not let children be children, (*b*) we develop predetermined habit approved by us, (*c*) we restrict their behaviour, (*d*) we do not allow them to think in the way they like to, (*e*) we put them as if in moulds, and (*f*) we stifle free thinking, free action and free expression. Getzels and Jackson (1962) have reported that teachers preferred teaching the high IQ group to the high creativity group, a result which is particularly revealing when it is borne in mind that there is no difference between the two groups on academic achievement. This indicates that the acceptability of the students is not decided merely by classroom performance on academic work. On the contrary, the teachers tended to discriminate between the two kinds of children, preferring the students whose results were obtained by the application of convergent, authority centred, conventional thought processes over those who tended to be highly creative in obtaining equally good results. Torrance (1959) has concluded that high IQ (as against high creative) students tended to be both better known and better liked by their teachers. Thus it becomes very clear that educational system does not recognize and nurture the creative talent of the students going waste.

Creativity and Science Education

Kirkpatrick (1964) remarked . "I have visited a number of science classrooms in session and been struck by the intellectual sterility of the procedures, a process in which the teacher speaks a few facts or reads them from a book and then asks students to repeat them The facts themselves are often dull " Schwab (quoted by Ahmed and Jafri, 1973) has stated that time-hallowed instruments of instruction —the lecture which aims to be simple, clear and unequivocal, the textbook which aims to eliminate doubt, uncertainty and difficulty, the test which aims primarily to discover what the student knows and how he applies what he knows about a subject—will be inadequate or even inappropriate for much science teaching.

According to Barnard (1977), "science can and should nurture the basic need of all young people to understand" but he finds some ways of driving the need under ground ; (*a*) dealing with the topics or problems in science which the learner sees no good reason for studying , (*b*) in an effort to cover the course of study, allowing insufficient time for learner to raise questions and think out their own concepts in relation to the new ones beings introduced , (*c*) over-emphasizing verbalization and memorization at the expense of understanding ; (*d*) usurping the science lesson (by the teacher) at the expense of the over-involvement of pupils Ahmed and Jafri (1973) have very rightly emphasized that it would be valuable for our students if we could inculcate in them the spirit of adventure, free thinking and non-conformism, which is the spirit of science. Delhi University Science Teaching Group, Friends Rural Centre and Rasulia and Kishore Bharti (1977) in the report, *The Hoshangabad Vigyan,* have raised the question as to why a child should be made to memorize a whole range of disconnected and irrelevant facts in the name of science ? The facts often make little sense to the teachers themselves and are seldom remembered beyond the examination. It can be concluded very reasonably that there is no place for creativity in the procedures and curriculum of science education, as we are imparting through the traditional methods, the already known facts. In spite of the facts mentioned above, nobody working in this field, seems to be seriously concerned for any change of the matters discussed above. Khire (1977) has analysed the situation very rightly that we can hardly say that the boy admitted to school in 1977 has got more opportunities to express his creative urge than the boy who was admitted in 1947. However, the list of studies mentioned above could be lengthened still more but the main emphasis of the discussion here was only to make it clear that creativity is not being recognized by the society and culture and it is not being nurtured by the educational system.

Creativity and Academic Achievement

It will be worthwhile to mention here that when our culture does not approve creative behaviour, curricula as a whole aim at bringing up conformists. The teaching methods do not tap the student's creative potential and examination system is having no scope for the students to express their creative talent, can we still imagine that academic achievement as indicated by examination results is at all influenced by the creative potential ?

Many researchers—Torrance (1960), Getzels and Jackson (1962), Cline Richards and Neetham (1963), Yamamoto (1964), Passi (1972), Mehdi (1977) and Majumdar (1978)—have reported that measure of academic achievement is found to be significantly related to the measure of creativity in a number of studies Thus they have tried to establish creativity as a new factor of academic achievement, in addition to intelligence. At the same time, almost all the above-mentioned research studies have also reported that measure of creativity is significantly related to the measure of intelligence, though the co-efficients of correlation are low. This shows that the measure of creativity is not independent of the measure of intelligence Thus, before we proceed further, it is important to decide the nature of the measure of creativity.

On the basis of the available research evidence, Foster (1971) has described two general viewpoints regarding the nature of creativity :

i) Creativity is proposed to be a distinct aspect of intellectual functioning, which is, for all practical purposes, independent of conventional intelligence.

ii) Creativity depends upon unique cognitive factors which function within the hierarchical structure of intelligence.

Mehdi (1977) has described that the exact amount of the relationship between intelligence and creativity, however, depends on the type of tests used and the nature of the sample studied. Thus, so far, there is no consensus regarding the relationship of creativity and intelligence and still, it is a debatable issue. It cannot be explained, with authenticity, whether this relationship (if it is there) is due to the communality of the cognitive factors involved or the tools of measurement used or the sample selected. However, it can be theorized that if, anyhow, the measure of creativity is found correlated with the measure of academic achievement, as in the research studies discussed above, it may be due to the variance, common to the measure of intelligence that creeps in the measure of creativity through the artifacts mentioned above. It will not be irrelevant to mention here that Wallach and Kogan (1965) have contended

> Creativity measures of Guilford (1965), Torrance (1960) and Mednick (1962) do not yield a valid index, which is cohesive in its own dimension, is uncontaminated by and distinct from intelligence. It is likely, therefore, that the relationship among creativity, intelligence and academic achievement obtained in several studies is largely due to the particular kind of creativity-intelligence relationship. Had this distinction ' between creativity and intelligence been established clearly, the results would have turned out to be different.

Thus it seems as if it is due to the common variance of intelligence, operating in the measures of creativity and academic achievement that both the measures are found to be correlated significantly with each other.

Moreover, logically speaking, any new factor of academic achievement could be established only if :

a) it is independent of the factors already established.

b) it is a significantly related to the measure of academic achievement.

It is a well established fact that intelligence is the most potent factor of academic achievement. Dhaliwal (1976) has quoted more than one thousand studies which confirm that intelligence and academic achievement are significantly correlated with each other. Hence, the measure of any variable we want to establish as a factor of academic achievement, should be made independent of the influence of intelligence (in case it is not), before doing further statistical analysis or the influence of the intelligence should be partialed out while working out the relationship between the measure of that variable and academic achievement.

Some researchers have tried to control the influence of intelligence on the measure of academic achievement or to partial out the variance common to intelligence from the measure of academic achievement and find its relationship with the measure of creativity Dhaliwal and Saini (1976) have reported that the measure of academic achievement independent of the intelligence (i. e. over under-achievement) and the measures of creativity are not significantly correlated with each other. Dhaliwal (1976) has also reported that there is no relationship between the measures of creativity and the measures of academic achievement in four compulsory school subjects when the effects of intelligence are held constant. Paramesh (1973), controlling the effect of intelligence, found that the measure of creativity is consistently found to have no significant relation to the measure of achievement in any of the scholastic subjects. Flescher (1963) also did not obtain any significant relationship between creativity measures (which were unrelated to intelligence) and academic achievement scores. It confirms that it is not the measure of creativity that has been found correlated significantly with the measure of academic achievement, as described by the research workers discussed earlier, rather it is the common variance of intelligence, operating in the measures of creativity and academic achievement, which makes the two measures to correlate with each other. When this common variance of intelligence is put off from the measure of academic achievement it ceases to correlate with the measure of creativity.

Conclusion

Keeping in view the above discussion, it can be concluded that it is because of the fact that the measure of creativity is contaminated by the variance common to the measure of intelligence, which is universally there in the measure of academic achievement also, that measures of creativity and academic achievement are found correlated with each other, otherwise creativity is having no relationship with the academic achievement when the influence of intelligence is held constant. It shows that creativity does not influence academic achievement of the students

Suggestions

Weisberg and Springer (1961) has remarked :

> Creativity does not blossom in vacuum. The creative mind interacts vigorously with a nexus of supportive and stimulating factors in the environment—whether in the home or in the school.

We know these factors are missing in our environment as discussed in this paper. Therefore, it is suggested that : *a*) The curriculum of school subjects should be made flexible so that it may have ample scope for creative activities. *b*) Teachers should be trained and guided to handle the creative potential of the students. *c*) The evaluation procedures should have the provision for the students to express their creative urge. Then only we can hope or aspire for the manifestation of the creative potential of the students in the fields like academic achievement. Otherwise it will be merely wastage of time and money to indulge in the investigations of the contributions of the creative potential of the students in the scholastic areas.

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Perception of Work-Values by Creative Teachers

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MAN is a dynamic living organism with myriads of life-values, ideas, attitudes and aspirations. Through the occupation he chooses to realize these values and ideas and ultimalely happiness for himself The value-system of teachers, their perceptions, behaviour styles and their outlook can profoundly influence the creative expression of the students (Rama, 1974). In order to develop this psychological uranium in their students, teachers themselves have to be creative. A creative teacher is like John Steinback's (1955) one of the three 'real teachers' that he had encountered. This teacher breathed curiosity into the class and his students brought in facts or 'truth' shielded in their hands like captured fire flies. We need creative teachers.

The present investigator has failed to come across any study which has attempted to study the work-values of creative teachers systematically. Hence, the present investigation has been undertaken to explore the work-values of creative teachers.

Objectives

The objectives of the present investigation are :

1. To explore differences in the perception of a set of work-values by high and low creative teachers.
2. To compare ranking of work-values of highly creative and low creative teachers.
3. To find out differences in dominant dimensions in perception of work-values by high and low creative teachers.

Definition of Terms

1. WORK-VALUE : The meaning of the concept of 'work-value' as used in this

study is drawn from the definition of Super who regarded them as 'aspects of work' Ten work-values have been selected by the investigator from the lists of Super, Dhar, Rosenberg and D. Chandra. These are : (*i*) Social Service, (*ii*) Prestige, (*iii*) Intellectual Challenge, (*iv*) Power, (*v*) Independence, (*vi*) Chances of Progress, (*vii*) Adventure, (*viii*) Variety, (*ix*) Economic Return, (*x*) Surroundings.

2. PERCEPTION : 'Perception' denotes a feeling of an individual about an object or situation of his concern Perceiving of work-values in this study means affective reactions of individual towards various factors. This meaning is in line with the meaning of this construct given by Piaget and Kelley.

3. CREATIVE TEACHERS : Teachers who came up with ways of doing things that are different from the standard directions; produced large number of ideas, prepared elaborate lesson plans; asked provocative questions; observed independence in making judgements, were not afraid of trying something new; were resourceful and went beyond assigned tasks were regarded as highly creative teachers. The low creative teachers did not possess most of these characteristics.

Sample

Sixty student-teachers were randomly selected from students studying in B.Ed. class in Digambar Jain College, Baraut. Their behaviour was observed by the present investigator in the classroom when they were taught by the researcher and when they were doing practice in teaching. On the basis of criterion mentioned earlier, ten highly creative and ten low creative teachers were selected.

Instruments

A 'work-value differential' was developed by the researcher on Osgood's technique. It was also found dependable. Here the subject is provided with ten work-values written on the top of paper and these work-values were to be differentiated on a set of 25 bipolar adjective scales. Subjects have to indicate for each item the direction of his association and its intensity of his association on a seven-point scale.

Administration and Scoring of Instrument

The work-value differential was administered to the two groups of student-teachers (HCG and LCG). They were asked to select both the direction and intensity of their chosen scales to describe a given work-value. Their responses were scored using 1-7 numbers. The scores for each teacher were obtained by collapsing scores over all work-values, all the 25 dimensions of his perception of all work-values and their five areas separately. The data obtained for the two categories of teachers was 10×25 scores for each individual.

Analysis and Interpretation of Data

The collapsed scores obtained regarding perception of each work-value or dimensions of perception and their areas for the two groups of teachers represent central tendency for the groups because they are the means of scores of the individuals who constitute the two groups. The *t*-test was used to compare the means of the two groups of teachers.

Examination of *t*-values provided in Table 1 shows that significant differences between two groups are on values : Social Service, Power, Independence, Variety, Economic Return and Surroundings. The four values, viz. Social Service, Independence, Variety and Surroundings are more prominent for the highly creative teachers

Table 1

'T' SHOWING MEAN SCORE DIFFERENCE BETWEEN HIGHLY CREATIVE AND LOW CREATIVE TEACHERS (PROSPECTIVE) ON PERCEPTION OF WORK-VALUES

S.No.	*Work-Values*	*Mean Scores of Perception of Teachers*		*Mean Diff*	*S E. Diff*	*'t'*	*Level of Sig.*
		Low Creative	*Highly Creative*				
1	Social Service	4 964	5 408	.444	.251	1 76	10
2	Prestige	4 804	5.154	350	261	1.34	NS
3	Intellectual challenge	4.938	5.032	094	.245	38	NS
4	Power	4.708	4.248	460	2	2 3	.05
5	Independence	4.584	5 328	744	395	1.89	10
6	Chances of Progress	4 948	4 536	.412	321	1.28	NS
7	Adventure	4 284	4 592	.308	.223	1.38	NS
8	Variety	4.468	5 176	708	299	2 70	.05
9	Economic Return	4 485	4 085	500	.279	1 79	.10
10	Surroundings	4 572	4 608	036	.188	1.97	10

while Power and Economic Return are more prominent in the perception of low creative teachers. It indicates that creativity of the teacher increases on providing the teacher with opportunities of more of Social Service, Independence and Variety. It seems that the cause of low level of creativity among teachers is the reflection of the fact that they find lack of power in creative teachers' job. Teaching as a profession is not meant for them.

Other values such as Prestige, Intellectual Challenge, Chances of Progress, Adventure in work are equally and highly favourable for the two groups but no significant differences have been reported.

Thus, it is clear that some work-values are perceived more favourably than others by the subjects of two groups. Consequently, it is possible to determine hierarchies of work-values for the two groups which would indicate their relative attractiveness The work-value are, therefore, rank-ordered on the basis of mean scores of perception (Table 2). The rank-ordered analysis provided by Table 2 reveals some interesting comparisons between two groups of teachers. The most favourable work-value noted in case of high and low creative teachers is Social Service. For highly creative teachers the least favourable work-value was Economic Return while for low creative teachers it was Adventure. Low creative teachers do not want to do adventurous tasks The highly creative teachers assigned second place to Independence and third to Variety On the contrary, the low creative teachers assigned seventh and ninth places respectively to them.

Table 2

RANK-ORDERED WORK-VALUES FOR HIGHLY CREATIVE AND LOW CREATIVE TEACHERS

Rank	*Mean Score*	*Work-Values for H.C G.*	*Mean Score*	*Work-Value for L.C G*
1.	5.408	Social Service	4 964	Social Service
2.	5 328	Independence	4.948	Chances of Progress
3.	5 176	Variety	4.938	Intellectual Challenge
4.	5 154	Prestige	4.804	Prestige
5	5.032	Intellectual Challenge	4.708	Power
6.	4 60	Surroundings	4 585	Economic Return
7.	4 592	Adventure	4 584	Independence
8.	4 536	Chances of Progress	4.572	Surroundings
9	4.248	Power	4 468	Variety
10	4.085	Economic Return	4 284	Adventure

It can be interpreted that the best source of satisfaction for the two groups of teachers emerge from two different centres of motivation, but two points of similarity are observed on the first and the fourth preferences. Another significant difference between the two groups is spotted on ranking the value, chances of Progress and Power. The former was ranked by highly creative teachers at the eighth place but the low creative teachers ranked it the second. This is an indication of the fact that creativity is being neglected in our schools. The value Power has been ranked ninth by the highly creative teachers and fifth by low creative teachers. As compared to low creative teachers' value, Adventure is more preferred by highly creative teachers. Other work-values are not similarly ranked but the placement of ranks display slight deviations in the perception of two groups.

In the differential there were 25 dimensions of perception common to all work-values and these were grouped in five areas, *viz.* evaluation, work-morality, potency, activity and novelty. Examination of Table 3 shows that highly creative teachers exhibit more concern for the work-morality area of perception of their work while the low creative teachers lay emphasis on potency and novelty areas. However, no significant differences have been found in the evaluation and activity areas of dimensions of perception.

Examination of Table 4 reveals significant differences in the mean scores of the perception of the two groups of teachers on seven dimensions only. They are Unselfish —Selfish, Constructive—Destructive, Unemotional—Emotional, Huge—Small, Unusual—Usual, Extraordinary—Ordinary and Interesting—Boring.

Table 3

MEAN SCORE DIFFERENCES BETWEEN HIGHLY CREATIVE AND LOW CREATIVE TEACHERS ON AREAS OF PERCEPTION

S.N.	*Area*	*Mean Scores of Perception of*		*Mean Diff*	*S E. Diff*	*'t'*	*Level of Sig.*
		Highly Creative Teachers	*Low Creative Teachers*				
1	Evaluation	5 022	4.918	.104	225	46	N S.
2.	Work-Morality	5.135	4.632	.503	.28	1 79	.10
3.	Potency	4 085	4 537	452	.157	2 94	01
4	Activity	5 004	4.812	.192	174	1 13	N S.
5.	Novelty	3.670	4 105	425	.18	2 36	.05

Table 4

COMPARISON OF HIGH AND LOW CREATIVE TEACHERS ON DIMENSIONS OF PERCEPTION

S N.	*Dimension of Perception*	*Mean Score for*		*Mean Diff.*	*S E Diff,*	*'t'*	*Level of Sig.*
		H C.G	*L.C.G.*				
1	Happy—Sad	5 41	5 49	.08	.308	.26	NS
2	Good—Bad	5 63	5 19	45	386	1.16	NS
3	Safe—Unsafe	5.18	4 73	.45	.663	68	NS
4	Sufficient—Insufficient	4.24	4 39	.15	.480	.31	NS
5	Successful—Unsuccessful	5 0	4 94	.06	411	1.61	NS
6	Full—Nil	5 14	4 86	.28	242	1 15	NS
7	Secure—Insecure	4.78	4 71	07	.212	33	NS
8	Social—Unsocial	5.52	5 0	52	.486	1 07	NS
9	Honest—Dishonest	5 52	4 88	64	371	1.18	NS
10	Unselfish—Selfish	5 46	4.24	1.22	325	3.78	.01
11	Constructive—Destructive	6.10	4.91	1.19	.294	4.05	.01
12	Simple—Complex	4.16	3.85	.31	351	.88	NS
13	Legal—Illegal	5.56	5 21	.35	.492	.71	NS
14	Friendly—Unfriendly	5 76	4 92	.16	.278	53	NS
15	Unemotional—Emotional	2.94	3 85	.91	.302	3 03	.01
16	Huge—Small	4.14	5 02	.88	236	3 73	.01
17	Strong—Weak	4 46	4 61	.15	.272	.55	NS
18	Extraordinary—Ordinary	3 24	3 98	.74	.382	1.94	.10
19	Progressive—Regressive	5.70	5.34	.36	.274	1 31	NS
20	Dynamic—Static	5 18	4 56	62	.445	1.37	NS
21	Slow—Fast	4 20	4 60	.40	.378	1 06	NS
22	Active—Passive	4 76	4.87	.11	.365	.33	NS
23	Interesting—Boring	5 32	4 69	.63	.318	1.98	.10
24	Unusual—Usual	3 18	3.98	.80	.206	3.89	.01
25	New—Old	4.16	4.23	.07	.249	.28	NS

We see in Table 4 that both the highly creative and low creative teachers perceive their work as happy, good, safe, sufficient, successful, full, secure, social, honest, unselfish, constructive, legal, friendly, emotional, huge, strong, ordinary, progressive, dynamic, slow, active, interesting, usual and new. As compared to low creative teachers, the highly creative teachers have better appreciations for unselfish than for selfish. They are more sensitive for constructive than the low creative teachers. For highly creative teachers work was more emotional, ordinary, interesting and usual than it was for low creative teachers who perceived their work as more huge than the former.

Conclusion

Results of this study indicate the desirability of highly creative teachers who should be allowed to enter our educational institutions. As they perceive lesser chances of progress in the teaching job, it becomes important that our government should take immediate steps to ensure continuous progress for creative teachers. They should rise to the top of the organization.

Social Service was the most favourable work-value for both groups of teachers. Economic Return was the least favourable work-value of highly creative teachers. They assigned the tenth place to it while the low creative assigned the sixth place to it. The highly creative teachers placed the value Independence in the second place and Variety on the third place. The former value was ranked seventh and the latter ninth by the low creative teachers. Adventure is the least favoured work-value of low creative teachers while it was ranked seventh by the highly creative ones. The highly creative teachers assigned the ninth place to the Power work-value while the low creative teachers assigned the fifth place to it.

Values like Social Service, Independence, Variety and Surroundings are more prominent for highly creative teachers while values like Power and Economic Return are more prominent in the perception of low creative teachers.

Work-morality area is more emotive areas of highly creative teachers while potency and novelty areas are more emotive to low creative teachers In the perception of highly creative teachers the dimension more emotive to them is being unselfish. As compared to low creative teachers, they perceived their work as more Interesting, Constructive, Emotional, Ordinary and Usual whereas they did not have better appreciation for Huge.

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Control of Knowledge Acquisition

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EDUCATION as a sphere of human activity is being gradually automatized and realized in the idea of programme learning with a view to optimization of control of the learning process. Modern psychology has played a leading role in this field. Programmed learning should be based on the general theory of control and psycho-pedagogical theories of learning. The general theoretical problems of programmed learning have been discussed by the author of this book in an earlier work published in 1969. In the present book N. F. Talyzina deals with psychological theories of learning which bring out specific characteristics of learning process in man and how far they can help in realizing the requirements of cybernetics. The theories that have been discussed are: (*i*) the theory of stagewise formation of intellectual actions, (*ii*) the association-reflection theory, and (*iii*) behaviourism While the latter two theories are better known in our country, the first one may not be so familiar to all of our educationists.

Synopsis of the book entitled *Upravlenie Protsessom Usvoyeniya Znanuii*, N.F Talyzina. Moscow . Moscow University Publishing House, pp. 343, 1975 (in Russian)

According to the theory of stagewise formulation of intellectual action, theory learning is a system of certain kinds of activity leading to new knowledge and skills. As a result of this activity besides acquisition of new knowledge and skills, qualitative change in the existing knowledge and skills may also take place. Learning as an activity consists of actions which help in achieving the goal of learning. Action as a unit of the activity of learning is the central point of this theory. This theory is based on experimental work done by P. Ya. Galperin and his team It provides an adequate psychological basis for management of the learning process. Before going into the theory it is necessary to clarify the concepts of *activity* and *action* as understood in the Soviet psychology.

ACTIVITY : By activity are meant processes which realize active, lively attitude of the subject toward reality It is characteristic of activity that motive and aim coincide in it It is inspired by that aim towards which it is directed.

ACTION · By action are meant processes subordinate to the idea of that result which has to be achieved, that is, processes subordinate to the conscious aim. Aim coincides with action.

Action and activity are the concrete objects of control. Any teaching should begin with selection of activity and the purpose of control (teaching) should be clearly marked Teaching must be relevant to life. The principle of relating teaching to life means that cognition and the knowledge received by pupils should help them in solving problems dictated by life.

The Structural and Functional Parts of Activity

One of the structural elements of the theory of stagewise formation of intellectual actions is the *orientational base of action* which is a system of conditions on which one actually relies while fulfilling some action. It differs from the system of objective conditions and plays a decisive role in the formation of actions. Thus, while solving the problem of 'making with six match-sticks four equilateral triangles without breaking the sticks', many include in the orientational base of this action the requirement that it is to be done on a surface, though there is no such condition included in the problem.

Besides the orientational part, every action consists of executive and controlling parts. The orientational part is directed towards correct and rational construction of the executive part. It takes account of the necessary conditions and ensures national selection of one of the possible execution.

The orientational part of activity for its sources depends upon the contents of orientational base which may be altogether different. Experimental studies have revealed four types of orientational base of action though theoretically there can be many more. Eight such types are given below.

S. No.	*Type of Orientational Base on the Basis of Generality*	*Type of Orientational Base on the Basis of Completeness*	*Type of Orientational Base on the Basis of Method of Receiving*
1.	Concrete	Incomplete	Self-prepared
2.	Concrete	Complete	Given in prepared form
3.	Generalized	Complete	Self-prepared
4.	Generalized	Complete	Given in prepared form
5	Generalized	Incomplete	Given in prepared form
6.	Generalized	Incomplete	Self-prepared
7.	Concrete	Complete	Self-prepared
8.	Concrete	Incomplete	Given in prepared form

The third type was found to be most effective. It was tested on writing skills, grammatical concepts, vocational training and elementary arithmetic In this type the guidelines given to the pupils are all very general and in each concrete case the orientational base is decided by the subject. This type was proved to be faster and flawless.

One of the experiments was conducted with the writing of letters of alphabet. According to the first type, a particular letter is shown and full details of its writing are given. It took 174 repetitions for the pupil before he could learn to write it correctly, but he could not learn to form a new letter. According to the second type, writing of letters of alphabet is taught with the help of dots which requires only 22 repetitions for the first letter and 17 for a new letter. In the third type of experiment the dots are placed in those places only when the stroke changes direction.

By this method pupils learn to write the first letter by making 14 repetitions and a new letter with only eight repetitions, and the eight new letters were written correctly in the first attempt. These results can be summarized in the following manner.

Orientational Base	*First Letter*	*Second Letter*
First type	174 repetitions	163 repetitions
Second type	22 ,,	17 ,,
Third type	14 ,,	8 ,,

The pupils were able to apply this method even for alphabets of other languages and drawings of objects. They could perform these actions on a single-line exercise-book as well as on a plain paper.

For the implementation of the third type of orientational base resetting of material would be required. For example, at present there are more than one hundred rules for the correct use of punctuation marks of Russian Each of these rules has to be learnt separately which means that every rule has its own separate orientational base. This is the second type of orientation. M. Ya Mikalinskaya analysed those rules according to their functions and showed that they are directed towards performing three functions : joining, separating and demarking. The pupils were taught orientation of these functions and the necessary actions connected with them. After this were given possible variants of punctuations for the realization of each of these functions.

Thus, in the third type of orientation not only the contents of the orientational base of actions are changed, there is a change in the contents of teaching also: Teaching of the rules of punctuation is replaced by knowledge of the functions performed by these rules. The pupils have to learn to recognize these functions.

Stages of Formation of Intellectual Actions

Any action before it becomes intellectual, generalized, shortened and assimilated, passes through transitional stages. The main amongst these are the stages of assimilation of action each one of which is characterized by a set of changes in the basic features (parameters) of action. These stages, according to P Ya. Galperin, are : (*i*) preparation of a scheme of orientational base of action, (*ii*) material formation of action, (*iii*) formation of action as external speech, (*iv*) formation of action in external speech by oneself, and (*v*) formation of action in inner speech.

The organization of control is a special problem in the stagewise formation of intellectual actions. Control at each operation was proved to be more effective than control at final answer. The following organization of control has been recommended :

1. In the first stage of the process of acquisition the control must be at each operation.
2. In the beginning of meterial (materialized) and external speech stages, the control must be systematic—after each exercise.
3. At the end of these stages and also at subsequent stages. The control should be carried out as required by actual teaching, i.e it should be episodical.
4. The manner of carrying out control (who controls) does not have much significance for the quality of acquisition. At the same time innovations in control methods and competition (when pupils are organized in pairs and mutual control is being carried out) help in creating positive learning motivation.

Finally, N. F Talyzina writes that this concept opens up possibilities of programming various kinds of cognition, primarily the methods of logical and specific (concrete) thinking. These methods have to be worked out separately for each subject. Teaching programmes can be prepared only after this has been done. The experiments and their results have been illustrated in the following two chapters. This theory has been recommended as the basis for programmed learning and answers to the requirements of an effective control of the learning process. □

Educational News

Volume IV September 1978 Number 3

How free do teachers feel ?

VLADIMIR HERCIK reports in *Unesco Features* that in defining 'academic freedom', Lord Robbins in his 1963 report to the British government, wrote "For the individual teacher, academic freedom means the absence of discriminatory treatment on grounds of race, sex, religion and politics and the right to teach according to his own conception of fact and truth, rather than according to any predetermined orthodoxy!"

To what extent is freedom, thus understood, enjoyed by teachers in primary and secondary schools? At least a partial answer can be found in a study undertaken by Unesco and carried out by Ben Morris, professor of education at the University of Bristol, England. His findings have just been published by Unesco in *Some Aspects of Professional Freedom of Teachers.*

The various national legal provisions and rules concerning teachers were taken into consideration in interpreting the findings, but the essential matter of the enquiry was the views expressed by individual teachers. These were obtained through the teachers' organizations in 12 countries: Costa Rica, France, Ghana, Hungary, India, Ivory Coast, Japan, Malaysia, Sweden, United Kingdom, United States and Yugoslavia.

Freedom and infringement

THE ENQUIRY sought the views of teachers on what freedoms—and responsibilities—they enjoyed, what they felt *entitled* to do, but also to what degree they saw the existing state of affairs as an *infringement* of professional freedom. While most teachers consulted felt that their freedom was respected regarding pedagogical methods in the classroom, they also felt there was a general infringement of their right to affect decisions concerning curricula, selection of textbooks and teaching materials.

Among those queried, British teachers alone claimed freedom to influence the curricula and to select textbooks. Hungarian teachers observed they had no entitlement to do so but did not consider this an infringement of their freedoms.

Most teachers, except in Yugoslavia, felt that they have less say than they ought to have in matters of their appointment, dismissal, and promotion The freedom of teachers to participate in policy-making and in planning was also widely held to be less than desired. Most respondents indicated that there was no conflict over the right of teachers to hold (without advocating them in the classroom) unorthodox but legally acceptable views on sex, race, religion and politics. However, the replies received from all countries, except Hungary, Yugoslavia and Sweden, showed that a minority of teachers considered their freedom was infringed in this area

How are teachers prepared to make use of their professional freedom? A great proportion of the opinions expressed indicated a belief that teacher-training institutions were not doing enough on this point.

The enquiry also throws light on areas which have remained in the shadow, the issue of pupils' and parents' right to have a say in matters of educational content and methods and whether this right—or its absence—affects teachers' professional freedom. The enquiry indicates that, generally, pupils and parents have at best, a very small voice in the affairs of the school—and that this situation is largely approved by teachers. However, teachers in France, Japan and Yugoslavia considered that their pupils' non-involvement in discussions of school life was in fact a restriction of the teachers' freedom. This freedom, they felt, should aim at extending the right of participation to all concerned in education.

Education and world hunger

THE SECOND World Congress of the International Association of Educators for World Peace (IAEWP) is going to be held at Varanasi from 29 December 1978 to 2 January 1979. The theme: Education and World Hunger. Eminent Indian and foreign experts in the field of different disciplines of education are expected to participate in the Congress. The IAEWP, founded in March 1969, is an N.G.O. of the U.N. and an affiliate of the Unesco with the category B status The IAEWP organized its first World Congress in Bucharest (Romania) from 29 July to 2 August 1974 on 'Education and International Understanding', which was a grand success.

According to an announcement published in the *Newsletter* of the IAEWP, hunger and population are the two disturbing problems of the world. The second World Congress will, therefore, focus attention on the problem of world hunger and will highlight the role of education in this area. The objectives of the second Congress are: (*i*) to develop understanding of the problem of world hunger, (*ii*) to find ways of solving this nasty problem, and (*iii*) to encourage attempts at mutual cooperation which may help solve this problem.

Protecting health and spreading knowlege—Child to child

THROUGHOUT the developing world, the school child is often close to his younger brothers and sisters, playing with them, feeding and otherwise taking care of them Because of this, school children represent an important resource which a group of educators and health experts at the University of London are planning to tap for the benefit of those children most in need in the world, reports Derk Kinnane in *Unesco Features.*

These are children under five living in the rural areas and poor towns of the Third World. There are some 350 million children around the world without essential health, nutritional and educational services, according to the group that has set up the Child-to-child Programme. They plan to begin implementing it in 1979, declared International Year of the Child by the United Nations.

Talking about new ideas

"By next year we hope to involve school children in providing health, food and educational services to pre-school children in the family, village or town," says Dr. David Morley, of the Tropical Child Health Unit at the university's Institute of Child Health. This institute and its sister body, the Institute of Education, are organizing the programme in cooperation with the British Ministry of Overseas Development. "We know that primary school children learn new ideas at school and talk about them at home," Dr. Morley says, adding, "remember, most of today's school children will be parents in ten years."

An example of the kind of service one child can provide for another—and typical of the programme's involvement with real conditions in the Third World—is the Shakir strip, a method of checking on whether a youngster is adequately nourished Named after its deviser, Dr. Shakir Adnan of Iraq, it is a narrow marked strip of cleaned X-ray film which is wrapped around the upper arm of the youngster whose nutrition is being checked.

"Experience has shown that children, if adequately taught, can do this measurement with surprising accuracy," Dr. Morley says.

Dr. Morley and his colleagues also believe that children can be taught to regularly give salt and sugar solutions to those suffering at home from dehydrating illnesses, including cholera, thus lessening the severity of the disease and even preventing death.

Children can be trained to recognise pneumonia, still a major cause of death particularly among small children in the developing world, too often parents and others close to the afflicted child do not realise the significance of this illness. Children can be taught how to bathe the eyes of younger children with salt and water, thus reducing eye infections. Among nutritional services children can learn to blanch and dry vegetable leaves rich in vitamin A to be eaten when fresh leaves are out of season. They can be prompted to have small gardens · in Indonesia, children are being encouraged to plant papaya trees as sources of vitamin A and C.

Word bathe

In the realm of education, they can stimulate their younger brothers and sisters simply by talking to them—"bathing them in words"—playing traditional games, telling traditional stories, acting out skits and where there is a puppet tradition, giving puppet shows. They can help out, too, as research assistants, the programme organizers believe.

"In many communities the health workers and the schools do not know the number of small children—information essential to the planning of health and educational measures for the future. Children could be asked at regular intervals to report on the young children in their households and other houses close-by," Dr. Morley says.

To gather more ideas of what children could do and to plan how best to enable them to do it, a working party is meeting in London this April with participants from Chile, Indonesia, Jamaica, Kenya, Nigeria, Papua New Guinea, Philippines, and Sudan. It will be followed immediately by a 40-man conference at Fittleworth, Sussex at which Bangladesh, Brazil, Egypt, Malaysia, Sri Lanka, and other countries will also be represented.

To carry out the programme, the organizers envisage national committees being set up to choose the most suitable activities for their countries.

At the end of this year, a baseline study will be made to see how much school children know and what they do. Then the same study will be repeated in the middle and end of next year.

"Child-to-Child will fit in with efforts by international organizations and governments to develop part-time health workers and one of its most important parts will be discussion between teachers and health workers The national ministries of health and education can start this and encourage health workers and teachers to participate in the programme," Dr. Morley says.

"But what will really determine whether it succeeds is how well people understand how important the child is to it and how much of their time and energy they give."

□

Statistics show progress and plenty of differences in our world

THIS MAY BE the age of the Common Man but the Average Human Being still does not exist—even statistically. Despite all the census-taking, classifying, cross-indexing and computerizing we all undergo there are still variations between life in Moscow and Montevideo, Cairo and Canberra, Singapore and Stockholm.

Around the world, wide—and sometimes deplorable—differences exist as can be seen from the latest edition of Unesco's *Statistical Yearbook*, which gives an annual picture in figures of the world's education, cultural activities and scientific level.

Cinema-going is an example. Traditional film-fans may be boycotting the box-office but the cinema is still doing good business in some parts of the world. On average, every Finn went to the cinema twice in the whole of 1975, Britons, citizens of the Federal Republic of Germany, Belgians and Austrians went a shade more often, but still not three times per head. The Bulgarians went just over 13 times, less than the people of Brunei (17 times), the citizens of the USSR (just under 18 times) and those of Singapore (just over 19 times a year). In Africa, the Yearbook figures show, cinemas are comparatively few and cinema-going in Rwanda does not even work out at one visit per head per year.

An important factor in the change in cinema-going habits must obviously be the increase in the television-watching habit. Two countries have passed the level of one TV set for every two inhabitants - the United States, which had 571 receivers per thousand of population in 1974 and the Principality of Monaco, which had 640 in 1975. The next nearest is Canada with 411, while a healthy score for most developed countries is around 300.

Book production climbing

When the last cathode ray tube burns out, people will probably still be arguing about whether television has anything to do with culture, but there is no doubt about the position of the book. In the field of book production the gap between developed and developing countries is striking Despite a fairly steady climb since 1955 (when the developing countries produced just under 22 per cent of the world's books, they turned out under 32 per cent of the titles in 1975 when they had more than 64 per cent of the world's population, the industrialized countries, however, almost reversed this ratio by publishing more than 68 per cent for less than 36 per cent of the world's population The world total of book titles produced in 1975 was 568,000, of which the developed nations published 388,200 and developing nations 179, 800.

The world's biggest book producers in 1975 were the United States with 85, 287, the USSR with 78,697, the Federal Republic of Germany with 40,616, the UK with 35, 526 and Japan with 34,590.

The figures seem to show that newspapers are surviving the threat of television. The USA still has the most newspaper titles in the world and 1975 was running 1, 812 off the presses everyday, 61 more than 10 years earlier. Of the countries which support many daily papers, India was up over the ten years with 835 dailies compared with 525; so were the Soviet Union (691 against 639), Sweden with 135 against 119, the United Kingdom with 111 against 110 France is down to 98 against 121 in 1965, so is Switzerland, with 95 against 132, and Argentina, with 164 against 171.

Educational task to be done

To support big newspaper and book-producing industries, countries clearly need literate populations to form the home market and the Yearbook's statistics on education show how much remains to be achieved in this vital field.

The world total of enrolment at all three levels rose between 1960 and 1974 from 324, 522,000 to 542, 761,000. Whereas in the developed regions population growth is levelling out and they are approaching the point where three education systems can cover all who can benefit from them, the developing countries are still coping with booming populations and severely strained facilities.

The percentages for the three levels of education reflect this situation for, while in 1974 primary school-children made up 57 per cent of all three undergoing education in Europe and only around 47 per cent in Northern America, in the Arab States the percentage was 73, in Asia, 70, in Africa, 84 and 79 in Latin America.

—Antony Brock in *Unesco Features*

NEWS FROM FIELD UNITS

Bhopal

Decentralizing secondary education

IN HIS presidential address at the 52nd All India Educational Conference, which was held at Tagore Hall, Bhopal, Prof. Shib K. Mitra, Director, NCERT, detailed the salient features of secondary education He declared that secondary education will be provided at two stages : lower Classes (IX and X) and higher Classes (XI and XII) The curriculum would constitute three languages, mathematics, physics, chemistry life, sciences, history and geography. The school would be free to introduce some other subjects like art, aesthetics, etc. depending on the demand of the community. The alternative courses would be in the form of vocational training but instead of secondary schools these should be offered in polytechnics

Prof. Mitra said that socially useful productive work is an important part of this education and students must be encouraged to learn the skills of an occupation. At the higher secondary stage, he said, schools should offer specialized courses as preparatory to university entrance for those students who have already done vocational training and intend to come back to secondary education proper, a one-year bridge course would be offered. At the higher secondary level it would be compulsory for a student to learn some trade or occupation. The school should certify the student's attainment. Some students might like to continue for two more years after doing vocational training at lower levels. There would be a provision for such course in polytechnics.

As is obvious, secondary education would be free and the admissions would be done on merit only. Only private schools would be allowed for charging fee. The expenditure incurred on poor students should be met by the State Government

Local industry, business, commerce and government offices, etc. should be associated with it so that the quality of vocational training and absorption of trained students is ensured Not only this the optional courses, part time courses, and correspondence courses should also be encouraged. More attention should be paid to schools in rural areas.

Emphasizing the need of good books for the children in the age-group 14-18 years in imparting education, Prof Mitra said that books on a variety of subjects should be published in all the languages In this process self-learning must be encouraged and the curiosity and motivation to learn should be fully exploited

Prof. Mitra also proposed that one board consisting of vocational and technical persons should look after bridging the gap between technical and general education. Concluding his address, the Director, NCERT suggested that the decentralization of administration is a beneficial system and as in elementary education it should be encouraged in secondary education as well.

Bhubaneswar

Practical training to women

THE State Government has decided to start a Polytechnic Institution in Bhubaneswar and an Industrial Training Centre in Cuttack from the ensuing academic year with a view to imparting practical training to women of the State in different arts and trades. Diploma Courses in Secretarial Practices, Architecture, and Food Craft will be introduced in the Polytechnic institution and there will be 15 seats for each of these trades. Arrangement for training in Radio Machanic and Draftsman (Civil) will be made in the Industrial Training Centre, Cuttack and 16 candidates will be admitted to each of these trades.

Literacy centres

THE Utkal Maheela Samiti has decided in its last meeting to open 200 Literacy Centres for illiterate girls and women in the districts of Cuttack, Balasore, Puri Ganjam, Dhenkanal and Sambalpur. The Samiti will appoint unemployed Matriculate girls as teachers in those Centres. Besides, lady organisers and supervisers will be appointed in order to quicken the pace of literacy drive among the women of the State

A course in marine science

THE Barhampur University is going to introduce a full-fledged postgraduate course in Marine Science from the next academic session. In the beginning, this Department will start with Marine Zoology and Oceanography and later on Marine Chemistry and Marine Botany will be added to it. The University Grants Commission has sanctioned rupees six lacs to start this new department. A building to house the Department is going to be constructed in the University Campus, Bhanja Vihar.

Advisory committee for new pattern of education

AT THE instance of the National Teachers Federation, the State Department of Education has constituted a 29-member advisory committee under the presidentship of Sri Gian Chand, I A.S , Secretary, Department of Education, Orissa. The members af the committee have been selected from among the distinguished officers of the Education Department, educationists and representatives of different universities in the State. The committee will determine the standard of educational institutions in the State and consider problems relating to new pattern and programme of education, textbooks and examinations.

Pune

Textbook wing for Goa schools

A TEXTBOOK WING on the lines of the Maharashtra State Textbook Bureau is proposed to be established by the Goa Secondary and Higher Secondary Education Board. The wing will be entrusted with the task of preparation and publication of textbooks required by the students of different standards of the Goa schools. To begin with the wing will take up the task of publishing language books wherein Goa's life would be focussed. To provide educational guidance to the 225 high schools and 13 higher secondary schools a quarterly magazine is also proposed to be published The magazine will be a forum for discussions on syllabus and experimentation at different schools.

State Institute of Adult Education

THE Government of Maharashtra has established a State Institute of Adult Education. The main functions of this institute are · (*a*) Preparation of curriculum for the national adult education programmes ; (*b*) training of adult education functionaries ; (*c*) to udertake innovative programmes for the promotion and furtherance of adult education; and (*d*) preparation and production of literature.

Free education for backward classes

THE Government of Maharashtra has decided to raise the annual income limit for being eligible to free education for economically backward classes at secondary, higher secondary and college level to Rs. 48000 uniformly. The present income limit for concession is Rs. 2400, Rs. 1800 and Rs. 1200 respectively. The decision would benefit about 60 per cent students at secondary level, 50 per cent at higher secondary level and 45 per cent at college level. This raise would involve an additional burden of Rs. 3 crore on the State exchequer. □

The ASIDO invites research articles, project reports, proceedings of seminars and workshops, news of festivals and exhibitions, information on activities of institutions and organizations such as libraries and universities, museums and galleries, foundations and research centres, academies and associations, etc —in short, any significant contribution on Asian cultural topics. A remittance of US $ 40/- for each 325 words will be made on the edited version of submissions. For details, please contact . ASIDOC (A quarterly bulletin of the Asian Cultural Documentation Center for Unesco), Post Box 41/2786, Tehran, Iran Cable Address · ASIDOC Tehran

Book Reviews

Education, Inequality and National Policy. Edited by N.F Ashline, T.R. Pezzullo and C.I. Norris. Lexington Books, D.C. Heath & Co., Lexington, Mass, Toronto, London, 1976, Pp. xxii+199 (cloth).

IT IS INCREASINGLY recognized that economic environment of the people and the amount of education they have are directly related with each other and schools have become accordingly an arena of the targets of reform. In the recent past a good number of conferences were held and outstanding research work came out. The book under review is an outcome of an invitational conference held at New Port, Rhode Island in June 1975, in which many eminent educationists holding academic and non-academic positions participated, The book includes an editorial record of that conference as well as a dozen papers which were developed by participants as a consequence of their conference experience,

In Chapter 1, F.M. Hechinger has discussed the role of education as a socio-economic equilizer. S.M. Miller has discussed in Chapter 2 various types of equality in the society, e.g. equality of opportunity, representative equality which is concerned with occupational outcomes, resource equality concerning with "equality-of-conditions efforts", economic differences among occupational positions, and task equality concerning with the potentials of job-satisfaction.

Torsten Husen presents a brief review of thoughts on the equality-meritocracy dilemma in education in Chapter 3. Prof. H. J. Gans in his paper(Chapter 4) explains the role of education in eradicating poverty, pointing out the historical evidence from the European countries. In Chapter 5 Prof. H. M. Levin attempts to analyse the role of social science in charting educational policy for improving the life chances of low income and minority students. Edmund Gordon looks at the problem of education of the disadvantaged as a problem of human diversity (Chapter 6).

Prof. Arthur R. Jensen discusses the problem of inequality in education in three stages · inequality in inputs (children—their nature and the extra-school influences that shape them), inequalities in conditions (the physical facilities in the schools, curriculum, quality of teachers, staff morale, physical plant, instructional facilities, management of institution, pupil-teacher ratio, special services, etc.), and inequalities in output which refers to the scholastic achievement in the strict sense of the term, as well as to other benefits of the school experience to the individual in terms of overall personal development and self-realization. He studies these three types of inequalities from the standpoint of individuals and group in Chapter 7.

Prof. C. Bereiter proposes in Chapter 8 to redesigning educational and occupational structures in such a way that they do not demand any high levels of IQ, as a solution to lessen the influence of IQ on educational and occupational attainment, since IQ is one of the important factors leading to inequality both in schools and outside. Thomas R Pezzullo also expresses the same opinion of eliminating the role of IQ in schools in Chapter 9

In Chapter 10, ' "Problems without Solutions : Solutions without Problems", Prof. Lester T. finds no explanation for the favourable change in the income distribution in the U.S. during the pre-War and the post-War periods but for overwhelming political consensus in its favour and argues for the same to achieve equitable income distribution. He also believes that we may be entering a period of increasing inequalities, although there is some countervailing evidence, and only a very strong political consensus can falsify this prediction.

Marshall Smith in Chapter 11 visualized the signs of success of compensatory education programmes in improving equality of educational opportunity. In the last chapter Gary Orfield pays his attention to the problem of school desegregation and accelerated suburbanization.

The book is an unsuccessful attempt in the direction of resolving the controversy that has surrounded this topic in the recent past that was created particularly by J.S. Colemen, *et al.*, *Equality of Educational Opportunity* (U.S. Government Printing Press, Washington D.C , 1966), "Equal educational opportunity", *Harvard Educational Review*, Special Issue, Vol 38, No. 1, Winter 1968, F. Mosteller and D P Moynihan (Eds), *On Equality of Educational Opportunity* (New York, Random, 1972), C Jencks, *et al.*, *Inequality . A Reassessment of the Effects of Family and Schooling in America* (London, Penguin, 1972), and Carnegie Commission on Higher Education, *Quality and Equality · New Levels of Federal Responsibility* (New York, McGraw Hill, 1968).

Nevertheless, the present book makes a significant contribution to the debate, and it is a welcome addition to the existing literature on this topic.

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Educational Philosophy of Swami Dayanand. Raghunath Safaya and Dwarikanath Bhan. The Indian Publications, Ambala Cantt. Price Rs. 40, pp. 185

THE educational philosophy of Swami Dayanand is not as widely and as meaningfully known to our teachers as it should have been. It is, perhaps, due to the fact that although enough literature is available in our libraries on western educational philosophers yet there are very few books on educational philosophy of Swami Dayanand who easily excells even the greatest western educationist. This fact seemed to have motivated the authors to write in this area. Needless to mention that it is a worthwhile effort

Swami Dayanand brought the Vedas within the reach of a common man. He reformed the degenerated Hindu society, gave it a new lease of life and made a Hindu command self-respect. The educational philosophy of Swami Dayanand is at the same time traditional yet most suited to the modern times. His educational thought are derived from the general philosophy of the Vedas but they are quite relevant in the present moral, ethical and educational crisis. This is the reason why every teacher, for whom the book has been written, should have a general idea of his educational philosophy.

The book consists of 14 chapters dealing with various aspects of Swami Dayanand's educational philosophy but the framework in which the matter has been organized is less educational and more philosophical. It seems the authors could not resist the temptation of putting in the whole matter which they had. Because of a weak framework, there is a slight lack of coherence between the chapters. Sometimes, the reader misses the logical link also. There are some quotations at places which are there for the sake of quotations only. It seems the authors have attempted padding.

The book should be widely read as here is a giant amongst philosophers, including educational thinkers, to whom the whole community is indebted for the great contribution made by him in the educational field and whose educational ideas should be known by ever-widening circle of educationists—practising teachers, researchers, educational thinkers, curriculum-framers, etc. for his thoughts will serve as a beckon for generations to come and if followed truthfully, could guide the educational destiny of mankind. The authors deserve credit for having written this book.

K.R P SINGH, Lecturer, Department of Teacher Education, NCERT, New Delhi

The Concise Oxford Dictionary (New Edition). Oxford University Press, Calcutta, 1977, pp. 1368. Price Rs 37.50

THE PRESENT dictionary is the sixth edition of the original prepared by H.W. Fowler and F G Fowler and printed in 1911. This edition prepared by J.B. Sykes was brought out in 1976 and its Indian reprint appeared in 1977.

One of the reasons why dictionaries need a periodic revision is that live language keeps on changing both in its diction and style. The old world lose their old meaning and acquire new ones. This is precisely the reason why books like *This Language Business*, by Palmers or the references to other archaic uses make so interesting reading On the same principle a comparison between the 1911 and 1976 editions of the present dictionary should also be revealing. Different dictionaries have different type of clientele. There are highly specialized dictionaries also in existence—dictionaries of philosophy, psychology, medicine, engineering, etc. and they have their jargon which is of not much interest to a person who does not have anything to do with that subject area. The most common type of dictionary is the one which deals with the pronunciation of words, their different forms and usages, and their exact placements in the field of grammar. For those who want to go into details they are welcome to an encyclopedia or such editions as the ones prepared by Webster, Funk, etc. For a common user the present type of dictionary should be enough.

The chage made in the original have been listed in the Preface to the sixth edition by Sykes himself:

> The opportunity has been taken to eliminate some matter that can no longer be regarded as pertaining to current English, to add many new words, phrases, and meanings that have entered the language in recent years (including technical expressions found in general literature), to increase the contribution from the English-speaking world outside the British Isles, to incorporate the Appendix of abbreviations into the main list, to systematize the definitions, to expand some unduly concise wordings, and to add an enlarged Introduction (which the reader is strongly recommended to study) explaining the use of the dictionary.

The editor has claimed numerous changes that have taken place in the current English, something which is reflected in the dictionary It is heartening to note that we come across words like 'ashram', 'Brahamin' but not 'Brahamchari'. Similarly, we find 'Pundit' with the spelling 'Pundit' and not 'Pandit' which is more common. Also we come across 'Shiva', 'Satyagraha', etc. which would please any Indian consulting this dictionary While giving the meaning of 'Satyagraha', it seems only the political connotation of the term appealed to the editor. Several other preferences in the same lines could also be detected.

The present dictionary has been properly brought out and is also reasonably priced. A useful edition indeed.

R.P.S. ☐

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□

The Local and the National

DEMOCRACY and decentralization appear to be two sides of the same coin. Whenever and wherever people are given choice they would like to live in their own way and evolve values that suit their life styles Democracy, if anything, means participation in every activity, whether social, administrative or economic. True democracy lends itself readily to various interpretations. But participation and freedom to live by values one cherishes are surely two important attributes of any democracy. Therefore, it is not illogical to conceive of democracy in terms of variety, local flavours and freedom. Whether small or big, a democracy looks and feels like one.

Variety may be the sauce of life but its bewildering genre could be unpalatable. Attempts are, therefore, made to see everywhere that on the surface of it all things move smoothly and that even confusion has a pattern. In the U.S. where educational structure and syllabi are maddening to an outsider, we have it on the strength of well-informed reporters, that social and educational mobility is the highest in that country and none suffers because of it. Similarly, in England—the most liberal of modern democracies—variety has been formalized to such an extent that 11+3 under all sorts of denominations mean one and the same thing.

In bigger democracies checks to things like "madder the better" come from a built-in mechanism. This mechanism may take any form, say, of a National Commission on Higher Education, a National Accreditation Agency, etc. or even a National Union of Teachers which merely goes to show that there is a general feeling that 'local' or 'regional' is not good enough. The variety must and does flourish but certainly not at the cost of national framework or policy. This then is the real position in the USA or UK.

A developing nation faces problems like equalization of educational opportunity, universalization of elementary education, adult literacy, etc. The decisions to resolve them are matters for a national government to take It is quite possible that the government may like to settle matters at the regional level. They may also decide to look at the educational structure as unimportant, but surely the content could not be regarded by anyone in high office as insignificant. Besides values the content of a course of study equips one with skills. These skills in turn have a dual role—they help one to seek employment and also furnish a spring-board for future growth. So far, we have no means to ascertain the type of skills a nation optimally needs. Forecasting in this regard has been woefully inadequate. And yet the structure of the educational system gets the major brunt of criticism It is seldom that educationists talk about the content or the decision-makers about the future requirements. What one needs to consider seriously, however, are . the relationships of education with economy, the quality of products, the values education supposedly inculcates among its receivers and, finally, the shape of things to come. Education is a serious business and frittering away one's energies on side-issues is not very wise. The structure of an edifice gives no indication of what goes on inside it and the conduct of business or otherwise its relevance or worthwhileness are things which society has a right to look askance at should things go awry. It is not advisable to tear down a structure just because it has grown old, but what needs looking into is the business it carries on. Also, how the whole thing be conducted is a matter of policy but in its arrangement the 'local' or 'regional' be not permitted to substitute or replace the 'national'.

November 1978 GENERAL EDITOR ☐

A Model for Management of State Education System

An Alternative to Centralized Bureaucracy

UDAY DESAI
Centre for Educational Policy and Management
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EDUCATION is one of the most important and expensive services provided by state governments in India. It often consumes over one quarter of the State budget annually State education systems are gigantic organizations by any measure. Many of them employ tens of thousands of teachers and cater to lakhs of students. Managing such a huge system so that it becomes a cooperative venture of the community and the government, it is responsible, innovative and relevant to community needs, is almost a Herculian task.

How well are our state education systems managed ? What are the critical problem areas in the management of school education system ? What alternative patterns of organization and management of the school education might be more efficient and effective than the present set-up ? This paper is based on a study[1] that explored these questions for one state education system.

The data for the study were collected from (*a*) personal interviews with Education Secretariat and Directorate personnel, with selected district and block level functionaries, and teachers and administrators, (*b*) the questionnaire survey covering all district and block level state education functionaries and selected teachers and headmasters of both primary and secondary schools. In all, over 3,000 persons were included in the questionnaire survey; (*c*) a large number of documents and government publications; (*d*) an in-depth and intensive study of three selected districts with project staff spending over ten days in each district, talking, listening and intensively observing the working and problems of the education systems at the grassroots, and (*e*) a series of seminars with selected officials from each level of the education system.

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[1] The study team consisted of Dr. D.P Sinha, Shri Ashok Malhotra and Shri Zahiruddin Khan, all of the Centre for Educational Policy and Management, Administrative Staff College of India, Hyderabad.

FINDINGS

1 The State Education Department serves three major clienteles directly: teachers, students and school managements The community at large including parents is its indirect but ultimate clientele. The needs and expectations of these clienteles are many and varied. The community expects high quality and relevant education, low failure rates, optimal utilization of the public resources allocated to the education and equality of educational opportunity. The teachers want good salary and better chances of promotion, a fair and efficient settlement of their personnel matters, better physical facilities in the schools and more opportunities for professional growth and development The students' needs centre around high quality education and education that leads to gainful employment. They also want fair and relevant assessment system The school managements ask for more autonomy, less rules and regulations, and speedy settlement of their requests, including request for funds. Of these needs and expectations, the Department has been able to satisfy the need for growth in number of schools quite satisfactorily. The study found that its response to other client needs has been unsatisfactory A high level of dissatisfaction exists among teachers. They are faced with cumbersome paper-work and unnecessary delays in the settlement of matters like pension, provident fund and salary Teachers' needs for growth and development are largely unfulfilled There is also a high rate of wastage and drop-outs, indicating the system's failure to serve its students.[2] The quality and relevance of education leaves much to be desired. The number of one-teacher schools and decreasing number of students per school indicate probability of sub-optimization of resources

2. The study found the State Education Department to be highly 'bureaucratic', i e oriented to rules and procedures rather than tasks and objectives. Most of the educational officials at every level give the highest priority to the orders of the higher-ups, and low priority to educational goals and clients. Responses to a questionnaire survey covering district education officials, gazetted inspectors of schools, deputy inspectors of schools and the extension officers indicate that following the instructions of the superior is given consistently the highest priority while 'help-

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[2] In rural areas of the state only 30 per cent of the children, who start first grade ever finish fourth grade The figure is for 1972-73, from the report of Finance and Planning Department of the state government concerned.

Seventy-two per cent and 81 per cent of students failed Class VII and X examinations, respectively, in the state in 1976 There was such a public uproar that the passes were increased, by state government decision to 26 per cent and 70 per cent Class VII and X, respectively, by adding 'grace' marks ing the schools and teachers', 'reducing stagnation and wastage' and 'teacher development', are found at the bottom of the priority list.[3]

The survey also indicates that the field level educational officials consider the hierarchical superiors and subordinates as the most important to get their job done. They consider parents, local elected officials, employees unions and other community groups unimportant[4] Thus their emphasis is on hierarchical communications and horizontal non-hierarchical communications and interactions with the 'outside' are neglected. It is a 'closed' instead of 'open' system

The study also found that officers at all levels spend a disproportionately large amount of time dealing with individual cases in personnel matters This in turn results in undue delays in making decisions of small personal matters and also leaves very little time for other essential activities such as planning for the future, reviewing the performance of the system and improving the quality of education. In face of the rapidly changing environment, the administrative machinery seems to be passively busy in making notations on the files an pushing them upwards.

3. The State Education Department's responsibility for school education is two-fold· (*i*) to maintain the existing educational enterprise in the State efficiently and effectively, and (*ii*) to encourage and manage the growth aud development of the education system in the state The study found that the maintenance activities receive overwhelming priority in practice and consequently the growth and developmental activities are neglected. Only exception to this has been the growth in number of schools. Even the units of the education system such as the State Council of Educational Research and Training (SCERT) and the Board of Secondary Education (BSE) which have special responsibility for educational innovation and development emphasize the maintaining of the on-going academic activities instead of engaging in innovative and developmental tasks.

4. In the state education system the SCERT and BSE are responsible for curriculum, syllabi and other academic matters. The BSE has primary responsibility for approving the curricula, syllabi and textbooks for secondary education in the state The SCERT has primary responsibility to undertake research in curriculum design, evaluation methods, teaching aid and technology and make recommendations for changes in the syllabi, curricula, textbooks and examination system. The Commissionerate for Examinations (CE) is responsible for conducting Class X examinations, including the appointment of paper-setters and examiners, evaluation of answer-books, finalization of results and their announcements, issuing of mark-sheets and various other certificates. The BSE and CE tend to be autonomous, even though they comprise a single unit. The SCERT is a completely separate entity. Curricula, textbooks and examinations are, however, interdependent functions Textbooks must suit the prescribed curriculum and the students must be examined on what is taught to them. Changes in curriculum should be reflected in corresponding changes in the textbooks and examinations It is crucial that these functions

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[3] For detailed data and statistical analysis, see Uday Desai, Goal incongruence in a government agency. Study of education department, *ASCI J of Management*, Vol 6, No. 1, September 1976, pp. 16-30

[4] ibid.

be integrated and the officials and agencies (SCERT, BSE and CE) performing them must be strongly interlinked. The study found that this is *not* the case in the state. There is very little coordination between SCERT, BSE and CE The research and recommendations of the SCERT on textbooks and curriculum rarely find their way to decision-makers on these matters. The SCERT is responsible for suggesting changes in the syllabi and examination system But it has no linkage with either the BSE or the CE No wonder that the same type of questions and pattern of papers continue over the years. In short, there is very little coordination in performance of the interdependent functions of curriculum, textbooks and examinations.

5. Over 80 per cent of the schools in the state are run by the local bodies Panchayat Samithis are responsible for administration of primary schools and zilla parishads for secondary schools The role of the State Education Department (particularly the district and block level functionaries) is to exercise technical (academic) controls. The dichotomy of powers and responsibility between the local bodies and the State Education Department has resulted in ambiguity of role and conflict between the local bodies and the field level officials of the Education Department At the field level the local bodies have the responsibility for the implementation and administration of school education and the Education Department officials are the 'watch-dog'. However, the existing power at the field level makes it unrealistic for the departmental officials to enforce all the rules and regulations of the department or exercise technical control. This dichotomy and quality of power and authority has engendered considerable dissatisfaction among teachers, state functionaries and local bodies' personnel. This is one issue, however, that touches upon the state's philosophy of governance and is essentially political. It has to be resolved, therefore, at the highest political level in the state, the legislature and the cabinet. It is clear from our study that this duality and dichotomy have deleterious effects on education in the state.

6. The study found that the State Education Department attempts to control everything in the education system. It controls inputs into education through control over syllabi, textbooks, selection of teachers, release of funds, admission criteria for students, etc. A large school inspection apparatus is maintained to control the process of teaching. Administrative inspection and audit are used to control school administration. Finally, the output is controlled through public examinations This tendency to control everything inevitably leads to rigidity, delay and lack of initiative, innovation and exprimentations in the school system. In addition, in practice it also results in the weakening of overall control since in an attempt to control everything, the department is spread too thinly and ends up controlling nothing satisfactorily. It needs to be selective in choosing areas over which it should exercise control and delegate the rest to schools themselves, within broadly set guidelines

7. One of the major activities performed by the State Education Department is the inspection of schools. Its purpose is two-fold: (*i*) to supervise and control the teaching process, and (*ii*) to help teachers and schools in improving themselves.

However, very combination of these two roles, one 'helping' role and other 'control' role, is incompatible. A climate of trust and openness is essential for the 'helping' relationship. The 'control' relationship, however, creates distrust, fear, unwillingness to be open and resistance to accept help. Thus it is difficult to establish the 'helping' relationship if the same person is also responsible for the 'control'. In addition to this inherent difficulty in the combination of these roles, since the 'control' role gives visible power, in practice the 'control' role has been predominant and the 'helping' role of inspection and inspectors has been neglected With the transfer of responsibility for primary and secondary education to local bodies, the 'control' role has also lost its relevance and utility. We found that teachers almost unanimously consider the inspection both useless and offensive. We also found that scant attention is given to the inspection reports and almost no action is taken to implement suggestions contained in it. It has become a ritual that has little consequence However, the problem is not just lack of authority to have suggestions of the inspection reports considered and implemented. These are two other problems with the inspection system as it is presently constituted Firstly, there are too many schools and too few inspectors. The present official norm is 40 schools per inspector, but in reality there are between 60 and 100 schools per inspector. The over-load of inspection work results in some schools not getting inspected at all for two or three years, and also in rather cursory inspection of the ones that are inspected. Secondly, and more important, the teachers and schools have devised methods to beat the 'system'. The 'inspection' has become an activity in fault-finding and is of little help even in exercising meaningful control.

8. One of the most disturbing findings of our study is that the sense of involvement, morale and motivation is very low among the people involved in the state education system. Teachers and field level officials are a highly dissatisfied lot. They are dissatisfied with the rules and regulations; with their working conditions, salaries and growth opportunities, and with the involvement of local bodies in education It is hackneyed to say that without a sense of involvement and high morale and motivation among the men and women to whom the task of education is entrusted, all other changes will at best bring only marginal improvement.

In the preceding section we have outlined a number of critical problem-areas identified by our study. Clearly, changes in the state education administration are urgently called for. One response to this need for change can be a 'patch-up approach' This would involve only marginal and superficial changes. Simplify some procedures, decentralize a bit more, sanction some new posts, and generally tinker a little with the structure and procedures of the system, but leave the basic assumptions, structure and way of doing things pretty much intact. This approach in our mind would be totally inadequate to meet the challenges faced by the education system. It would deal only with the symptoms without getting at the root of the malaise. The time has come to look the problems in the eye and do whatever is necessary to lick them. With this sense of need for an overall approach, the need for making a clean break with the past, we formulated and studied in depth several alternative patterns of management for the state education system After carefully considering the feasibility and desirability, resource requirements and likelihood of success of various alternatives, we recommended a new model for management of the state education system. Before we proceed any further it needs to be emphasized that the proposed model is intended to provide a framework, an approach to revitalize the education system, and *it is not* an inviolable blueprint to be followed rigidly. It is proposed to encourage discussion and debate on this vital issue. Its features need to be sharpened and detailed filled in

PROPOSAL

1 *District Level*

The most central feature of our proposal is an autonomous District Education Board[5]. This Board will be made up of 15 or so people, representing panchayat samithis, zilla parishads, teachers, headmasters, private managements, the State Government, educationists and parents. The District School Board (DSB) would be responsible for both primary and secondary education in the entire district. It would be responsible for identifying areas where new opportunities have to be provided for budgeting and allocating funds to different blocks, schools and levels (primary, secondary, pre-primary, etc.) and for review of performance in terms of well-defined goals regarding drop-out rate, stagnation and wastage, literacy rate, results in public examinations, etc It would identify the major problems of education in the district and formulate policies for solving these problems It would also help in mobilizing community resources for education and would provide linkage between the district and state levels

The DSB would work within the broad constraints set by · (*i*) overall policy guidelines issued at the state level, and (*ii*) the annual budgetary provisions determined at the state level

The budget allocation by the state to districts would be in the form of block grants. The district level would be responsible for allocating its resources in the light of its properties and programmes. It may be useful to think of the proposed district school set-up as similar (bot not identical) to the universities in the state There would be one major difference, however. The universities are autonomous in determining their academic policies, while under the proposed model for school education, the broad academic policies regarding curricula, syllabi and textbooks, etc. would be made at the state level. This obviously is necessary to provide a certain degree of academic uniformity in the school education throughout the state.

The executive head of schools at the district level would be called the Superintendent of Schools (SS). He would be responsible for implementing the policies, plans and programmes of the Board. He would be the Chief Executive Officer and ex-officio member of the Board. He would supervise and coordinate the educational activities of the blocks. He would help the Board in planning and budgeting, and in developmental activities for the improvement of education in the district. He would provide educational leadership in the district He would be assisted in his responsibilities by three officers. First, the Development Officer who would have a team of two or three resource persons. The Development Officer and his team would review existing curriculum and syllabi and give comments to the Superintendent of Schools on their relevance and make suggestions for changes and innovation They would conduct periodic reviews and visits to schools and classrooms, not for supervision and control purposes, but to identify problem-areas and development needs, and to help the school and teachers in resolving them They would conduct training programmes for teachers in cooperation with the state level training organizations. In essence the Development Officer and his team would be the 'resource group' to help schools and teachers in their academic tasks. This would be a sole governmental resource group to provide support to all the secondary schools in the district. There would be no other governmental resource group or person for secondary schools at the block level. However, there would be a small resource group for primary schools at the block level The second officer who would help the Superintendent of Schools is the officer for finance and auditing He would be responsible for financial planning and budgeting for the district, disbursement of funds to blocks and aided managements, auditing of local level offices and other normal accounting functions. The officer for personnel and administration would be the third officer to assist the SS. He would look after the personnel and appellate matters of teachers, manpower planning for the district and other establishment matters. He would work closely with the Development Officer for identifying development and training needs of teachers and headmasters

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[5] Persons familiar with earlier and current thinking in education administration will rightly feel that this is not an entirely new concept discovered by us Its antecedents may be found in the Mudaliar Commission (1948-49) and Kothari Commission (1964-65) reports.

2 *Block Level*

At the block level, each block would have a Block Education Committee (BEC) with about 10 members. The members of the Committee would include the president of panchayat samithi, the Block Development Officer, and representatives of teachers, headmasters and parents. The Assistant Superintendent would be the executive head of schools at the block level and an ex-officio memeber of the BEC. The committee would plan, budget and review the educational activities of the block and generate local resource and support for implementing its policies and programmes It would give ideas and suggestions to the district level for improving the quality of education and for increasing its relevance.

The Assistant Superintendent would be in charge of all school education in the block He would be responsible for the expansion and development of education in the block for implementing schemes like mid-day meals, non-formal education, school complexes and for providing training opportunities to teachers. He would act as a link between block and district levels. He would be accountable for the educational performance of the block in terms of drop-out rates, enrolment, results in public examinations, literacy rates, etc.

We envisage that all normal administrative matters would terminate at this level, decisions regarding transfer of teachers, opening of new schools, amalgamation of single-teacher schools, creation of new posts, improvement in the physical conditions of schools, etc. would be settled at this level. This decision-making authority at the block level would be exercised within broad constraints set by overall policy guidelines issued at the Directorate and district levels; the annual budgetary provisions; and annual plans prepared at the block level and reviewed and approved at the district level.

The Assistant Superintendent would have the necessary secretarial and professional staff to carry out his responsibilities. He may also have a resource group of two to three persons, which would carry out functions similar to those of the of resource group at the district level, but only for the primary education.

3. *School Level*

At the school level there would be a school management committee consisting of the headmaster, teachers, representatives of parents and gram panchayat, and one of the resource persons at the block level. The planning, budgeting and performance review at the school level would be done by this Committee

4 *Directorate Level*

The Directorate of School Education at the state level would be essentially concerned with planning school education for the entire state; allocating resources in the form of block grants to districts, reviewing the performance of the various districts, and designing, reviewing and modifying the academic policies for the entire state, helping the district board in translating the government policies into action plans, and conducting Class I common examination The Director, School Education, would head the Directorate. He would be assisted by a Joint Director for academic matters, a Joint Director for planning and review, a Teacher Welfare Officer, an Administrative Officer, and two Special Officers, one for primary education and the other for non-formal education.

The Joint Director for academic matters would be responsible for development, design and periodic evaluation and re-design of curriculum and syllabus for primary and secondary education. He would coordinate research and development on teaching methods and technology curriculum and syllabus, examination system and other academic aspects of the school education. As we have pointed out earlier, at present these activities are dispersed among three main units, namely, the State Council for Educational Research and Training, the Commissionerate for Examinations, and the Board of Secondary Education and that there is a lack of coordination among them. Under our proposed set-up, these activities would be well-coordinated and brought into the main stream of decision-making process at the directorate level. The Joint Director for academic matters would also be responsible for conducting Class X state-wide common examination and for providing in-service training for teachers

The Joint Director for planning and review would prepare a comprehensive plan for school education in the state, and provide broad guidelines to the District School Boards on planning process and financial controls He would help the Director and his colleagues in allocation of funds to districts in a manner that would integrate the requirements of districts, government's education policy and overall resources availability He would also help in the review of districts performance. The Joint Director for planning and review would be assisted by a Finance Officer, a Statistical Officer and an internal auditor The Teacher Welfare Officer would formulate personnel policies and provide a continuous link with the teachers and employees' associations

The Special Officer for primary education would provide a focal point for dealing with the problems of primary education in the state. He would provide leadership in dealing with problems such as high drop-out and wastage rates and low enrolments The Special Officer for non-formal education would be responsible for all schemes of non-formal education, including pilot projects and their extension after review and evaluation. Both these Special Officers would work very closely with the Joint Director for academic matters, and take full advantage of findings of research carried out under him.

5. *Secretariat Level*

The Education Secretariat, headed by the Education Secretary, would be primarily concerned with overall policy formulation , planning and review of the total system with coordination among various Directorates and other autonomous systems directly linked with education, and with providing liaison between the legislature and the Education Department. The Education Secretary would be assisted by two Joint Secretaries, one for planning and the other for academic policy

The Joint Secretary for academic matters would be initiator and sounding board for major academic policies in the state, such as policies to improve the quality of education, or to make the education more relevant to the community and student needs. He would be a person with deep and thorough understanding of challenges and opportunities at every level of the educational system in the state He would also be familiar with the latest thinking and experimentations in the field of education in the country and the world.

The Joint Secretary for planning would provide, in the light of the state's resource position and educational priorities, policy guidelines to various Directorates ond other operating systems. These guidelines would serve as a basis for preparation of their plans, budgets, operating policies and priorities, and periodic review reports. The Joint Secretary would process long-range and annual plans and projections as well as budgets and consolidate them in overall long-range and annual comprehensive plans and budgets for the state. A team of two or three officials may be provided to help the Joint Secretary in these tasks. Two Deputy Secretaries may be provided—one to look after the school education and the other one to look after the higher education. An Assistant Secretary under the Joint Secretary would look after the internal administrative and establishment matters

The plans and budgets prepared by the Joint Secretary for planning would be discussed by a group made up of the Secretary, two Joint Secretaries and Heads of various Directorates and other operating systems. They may be modified and changed by the group This group would also review the performance of various operating systems on a periodic basis and identify areas for mutual help and support.

IMPLICATIONS

1 *Decentralization and Diversity*

The proposed set-up envisages that matters of routine administration will be settled at lower levels and the Directorate and the Secretariat will deal essentially with matters of policy, planning, budgeting, review and development. This would entail significant changes in the prevalent system and procedures and restructuring.

of the various sections in the Directorate and the Secretariat.

Another implication of this change would be greater diversity among different blocks and districts. It is likely that the new structure may lead to different administrative practices and internal structures in various districts. This, we think, will be functional and may even be desirable provided some uniformity in standards and broad policies can be maintained through common curriculum, examinations and policy guidelines.

It may be argued that decentralization of administration will lead to dilution of control over field level organizations However, the control may be more meaningfully exercised through agreed annual plans and accountability for results and performance. Thus in the proposed set-up the Department would not be able to control individual cases of administrative matters, but would be in a better position to control the overall performance of the district.

2 *Planning Process*

The proposed structure lays considerable emphasis on planning and on decentralization of the planning process. With greater care and rigour at the time of planning and budgeting, a considerable administrative work-load at the implementation stage can be avoided Further, the proposed structure would help the department in determining the board directions in which the state education system would move and enhance the department's ability to influence this direction.

In order to do this meaningfully it is essential that the planning exercise start right from the school level. The Block Education Committee and the District School Board would plan the educational activities at the block and district levels respectively A measure of uniformity in the plans of various blocks and districts would be ensured through policy guidelines and resource allocation. However, the decentralization would automatically lead to some diversity in the patterns of growth, relative emphasis on different modes of education, etc. among different districts.

3. *The Role of Local Bodies*

At present, a large number of primary and secondary schools are managed by local bodies. However, if one takes a close look at the role of the local bodies in the functioning of these schools, it becomes apparent that their role is confined to routine personnel administration and to opening new schools. With a distinct decline in pressure for opening new schools and a scarcity of financial resources for this purpose, the role of local bodies is more and more limited to personnel administration.

In the proposed set-up the local bodies would be represented on the district school boards and block educational committees where they would plan and review the educational activities in their area. Thus they will have an important role in planning, budgeting and in setting priorities for their areas. They would also ensure that education is well integrated with needs of the area and with its other development plans. However, they will have no significant involvement in the day-to-day administration of schools and teachers. This arrangement should cut down the existing duplication, wastage, role ambiguity and lack of accountability in the system.

4 *Inspections*

The proposed system does not provide

for regular routine inspection activity. Instead, there will be a periodic review of schools by a panel consisting of teachers and headmasters of other schools. The panel's report would be considered by the block and district officials who would ensure that the reports lead to meaningful corrective action Further, the block and district official would concentrate on providing teacher development opportunities and identifying and diagnosing the problems faced by schools. Inspection of schools by the departmental officials will be undertaken only in such cases where there are specific complaints.

In the proposed organization, the thrust has been essentially on developmental tasks and performance rather than on maintenance activities. This is almost a reversal of the existing situation. If implemented with proper planning and orientation of education department officials, the proposed model would lead to more efficient administration and would enhance the quality and relevance of education system. ☐

Effective Utilization of Community Resources in Adult Education

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THE PROSPERITY and development of a nation depend on an intelligent and efficient use of its citizens' abilities which requires understanding of their own problems, needs, priorities and the knowledge of changes and developments taking place in their environment In the modern age where science-based technology has been adopted, knowledge grows very fast, and industrialization is rapid. The changes take place faster in every walk of life. Our society, its values and needs change rapidly and give rise to the new problems. Hence education should continue throughout the life of an individual so that he can cope with these changes To meet this requirement, therefore, some well-organized system of education, besides the formal system of education, is needed. Such a system would include two categories of people · (*i*) who have completed their formal education, and (*ii*) who are illiterates. Members of these two groups are mostly adults. These adults contribute to the maximum, so far as the socio-economic development of a nation is concerned. Therefore, to increase the range and speed of socio-economic development there should be some well-organized programmes of adult education.

The importance of adult education programme was recognized by the great thinkers of India. In the words of Dr. V.K.R.V. Rao :

> Without adult education and adult literacy it is not possible to have that range and speed of economic and social development which we require, nor is it possible to have that content, or quality or tone to our economic and social development that makes it worthwhile in terms of values and welfare. A programme

> of adult education and adult literacy should therefore take a front place in any programme for economic and social development[1].

This statement is more suitable in present conditions. It is heartening to note that the importance of adult education has been recognized by the government too. The present government has prepared the policy statement on adult education and has outlined the programme also. But, when such a programme is organized in a democratic society like ours, it should take care of democratic values. The concept of democratic society is based on egalitarianism. Hence, the programme should take care of welfare of all. It necessitates that adult education programme should emphasize imparting education to the economically and socially deprived sections of the society. This means that rural areas have to be given special attention in the programmes of adult education.

The programme of adult education for rural areas would demand certain issues to be taken into consideration by the organizers. These issues are : social conditions prevailing in the area, and thorough knowledge regarding the needs and difficulties of the clients. They should have the knowledge of changes and new developments which can help these rural people in their personal enrichment, professional advancement and effective participation in socially productive work and in their political life too. It means that the organizers should have a thorough understanding of the group for which the programme would be organized. For this the programme has to be undertaken at the local level Its unit would be a village or a group of villages involving the local people who have better understanding of the social conditions, needs and difficulties of the people in the area Now the question is· Whose services can be utilized for the programme and what are different roles those people have to play in the programme ? It can be understood in a better way if we consider an area in which such a programme could be launched The case chosen for this purpose is a village of Budhsaini in the State of Uttar Pradesh.

The case was studied in depth by Yadav, Govinda and Kumar[2] for the utilization of available resources for educational development in a rural area. It is referred here to show how adult education programme could be organized in such a rural setting.

The Profile of the Village Budhsaini

The village is located in the district of Meerut It is 3.5 kms. off the Meerut-Baghpat road. The nearest railway station happens to be that of Meerut city which is 34 kms. from the village. The Meerut district is flanked on two sides by the two major rivers, Ganga and Yamuna. Aminagarsarai is the nearest town with marketing facilities, which is at a distance of 3 kms. from the village. The village has a total population of 2,485 with 318 households. The distribution of the population according to literacy in different age-groups for males and females separately has been given in Table 1. There are 1,430 illiterates in the village which is about 60 per cent of the total population.

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[1] V.K.R.V. Rao *Education and Human Resource Development*, New Delhi : Allied Publications, 1966

[2] M S. Yadav, R. Govinda, and S. Kumar An integrated approach to resource utilization for educational development in a rural area. *Preparing Teachers for Education in Rural Development : A Handbook*, Bangkok, Unesco, 1977.

Table 1

DISTRIBUTION OF POPULATION ACCORDING TO LITERACY IN DIFFERENT AGE-GROUPS

Age-Groups in Years	*Males*		*Females*		*Total%*	
	Literates	*Illiterates*	*Literates*	*Illiterates*	*Literates*	*Illiterates*
5 and below	11	180	7	170	5.17	94.83
	(5.76)	(94.24)	(3.95)	(96.05)		
6 to 10	185	49	86	103	64.07	35.93
	(79.07)	(20.93)	(45.50)	(54.50)		
11 to 14	105	11	51	55	70.27	29.73
	(90.52)	(9.48)	(48.11)	(51.89)		
15 and above	525	318	85	544	41.44	58.55
	(62.28)	(37.72)	(13.51)	(86.49)		
Total	826	558	229	872	42.45	57.56
	(59.68)	(40.32)	(20.79)	(79.21)		

(Figures in parentheses indicate percentage)

About 50 per cent of the total population of the village are engaged in the gainful activities. Structure of this working class population according to different occupations has been given in Table 2.

Table 2

WORKING CLASS POPULATION IN DIFFERENT OCCUPATIONS

Occupations	*Number of Individuals*	*Percentage*
Farmers	572	44.96
Agriculture Labourers	272	21.38
Carpenters	46	3.61
Washermen	22	1.72
Barbers	6	0.46
Tailors	5	0.38
Corn bakers	2	0.15
Sweepers	29	2.27
Blacksmiths	15	1.18
Basket-makers	4	0.30
Astrologers	4	0.30
Potters	125	9.82
Millowners	5	0.38
Singers	2	0.15
Shopkeepers	12	0.94
Milkmen	9	0.71
Doctors	5	0.38
Service*	136	10.68

*Salaried people employed in government and private organizations have been included under this head. Of these 136 persons, 34 go out of the village everyday for work.

Of the total population only 34 go out of the village everyday for work. Among the non-working population, there are 57 who have got education up to various levels ranging from primary schooling to postgraduation. These people have been classified according to their educational qualifications in Table 3.

Table 3

EDUCATED NON-WORKING POPULATION

Sex	*Below High School*	*High School*	*Inter*	*B.A and B.Sc*	*M.A and M.Sc.*	*Total*
Male	23	11	2	2	6	44
Female	7	2	—	2	2	13
Total	30	13	2	4	8	57

The village has three schools catering to the educational needs of the children. One is primary school with Classes I to V along with a pre-primary section having a total enrolment of 257 students. There are four teachers in this school and one headmaster. Out of these five staff members two belong to the same village and three are from the neighbouring villages. The second one is also a primary school with Classes I to IV along with two pre-primary sections having a total enrolment of 121 students. This is a single-teacher school. The other school is a junior high school with Classes VI to VIII having a total enrolment of 130 students There are four teachers in the school out of which two belong to the same village and two belong to the neighbouring villages. This school has got an agricultural farm also. These figures do not include all the children of the village who are attending school as some of them may be going to schools situated in neighbouring towns or villages. Similarly some of the children enrolled in these schools are from neighbouring villages. For school education beyond Classes VIII, children have either to go to the town, which is at a distance of 3 kms. from the village or to another village which is at a distance of 3·5 kms For university and technical education, however, the facilities are available in towns only, which are about 20 to 30 kms away from the village.

There are several official programmes in operation in the village. Health and family-planning workers visit the village once in every fortnight to popularize family planning and to work for the eradication of malaria and other communicable diseases. Officials from the Community Block Development Office visit the village occasionally for giving demonstrations about the use of high-yielding varieties of seeds and chemicals and fertilizers. The main officials involved in these demonstrations is the village level worker who permanently stays in the village and also engages himself in other agricultural extension work.

Adult Education Programmes : Objectives and Context

The main purpose of an adult education programme is to accelerate the range and speed of socio-economic development so as to increase the standard of living of the people. This would be possible only when citizens of a country participate willingly in its developmental programmes. This willingness can be created by providing the education relevant to their work, so that it could make them more efficient in their different jobs in which they are engaged This efficiency would result into more production and would facilitate their work by making it easier It is through this process that their economic and social conditions can be improved. This is more urgent in a country like ours, where masses of people have missed schooling and whatever education is given has been irrelevant to the developmental needs of the people. The following would be the objectives of an adult education programme :

1. To educate the people to participate in the adult education programme willingly.
2. To study their needs and interests in order to plan the instructional activities to make the instruction work-based.
3. To impart knowledge regarding the changes, new ideas and developments in their environment.
4. Liquidation of literacy

For this purpose, if one looks carefully in the village profile, he would find that there are 10 teachers working in the village schools—five from the same village and five from the neighbouring villages These teachers may be having better understanding of the nature of the people, their work and the social conditions prevailing in the area than any external agency. In order to attain the above objectives it is necessary to involve these local teachers in the programme of adult education. These teachers may work as the resource person for an adult education programme in the village. Their first task would be to find out: (*i*) for how many people the programme would be organized, (*ii*) the number of literates and illiterates for males and females separately that the programme could be organized accordingly (Table 1). It could be noted from Table 1 that there are about 1,430 illiterates in all (558 males and 872 females). Putting aside the group below five years the number of illiterates comes to 1,080 out of which 862 falls in the group above 15 years. It is about 80 per cent of the total illiterates in the village. Here it is worth remembering that this group includes people above 15 years of age, many of them are quite old and most of them are not ready to receive education Another point to be kept in mind is that no compulsion can work here, only some incentives can be provided to these people. Here comes again the role of teachers in training these people to receive education. These local teachers can do this task effectively because they know their difficulties and need and, therefore, they can tell the clients how the programme of adult education would solve their problems and make them more efficient in their work which would increase the production and improve their economical and social conditions. When these adults are motivated to learn then they would be acquainted with the abilities of reading, writing and arithmetic and some general knowledge relating to civic and national problems in which the entire society is involved The teacher can help in finding out the other community resources which can be utilized As shown in Table 3, there are 21 men in the village who are matriculates and they are at present either unemployed or engaged in agriculture. Services of these people also could be utilized.

A closer examination of Table 1 reveals that out of total illiterates in the age-group of 15 and above there are 318 males and 544 females. It is obvious that number of females is far greater than males The same condition prevails in the entire country. The programme of adult education must presume universal literacy. It is obvious that out of the total illiterates women form the greater part of the population. Therefore, liquidation of women illiteracy becomes a matter of immediate concern. But, one of the most difficult tasks in the adult education programmes could be the education of women folk in the rural areas. It is due to the reason that there are certain sociological factors which would affect the programme of adult education. Therefore, when some adult education programme has to be organized, particularly in a rural area, some sociological factors have to be kept in mind which would certainly affect the programme. In the village it is found that there is *Purda* system for married ladies. Ladies do not talk with their elders, particularly males. There is a kind of restriction for ladies as they would obey the male members and elders and will not be in a position to take decisions themselves. In such a situation it would be next to impossible to teach adult ladies by male teachers. Now the crucial issue is: How to organize adult education for women in a rural area ? It would be possible only when (*i*) men-folk are enabled to understand the need for women education, (*ii*) women are motivated to learn and (*iii*) some women organize the programme of adult education. For this purpose also there should be some ladies who are well aware of the difficulties of ladies and the social conditions prevailing in the locality which cannot be understood by an external agency. Therefore, it requires the help of some local people particularly ladies who can understand the problems of females in a better way. Table 3 reveals that there are six females in the village who are matriculates. These ladies are housewives and stay in the village only. Considering the above factors which affect the women education, it seems appropriate that the services of these educated ladies should be utilized.

Another important aspect of adult education programme is that it must be, as far as possible, 'work-based' aimed at creating attitudes and interests and imparting skills and information which will help a person to do efficiently whatever work he is engaged in. This requires a thorough knowledge of the occupations in which these people are engaged and the nature of work they do For this purposes, the teachers and other community members who have been suggested earlier should conduct a survey regarding the different occupations in that locality. Table 2 gives the occupational structure of the village. From Table 2 it could be noticed that there are about 18 different occupations in the village. It was found that the occupational structure in the village is largely based on the caste classification except for those who are employed in different organizations. In addition to this, the nature of work in different occupations should be observed to locate the real difficulties in that. So far as this work is concerned, it can be done in an objective manner only by the people who have some experience of doing the same work. Here, again it necessitates to involve local people who have such experience and are aware of difficulties in the work.

Once the above information is collected the instructional activities—the skills and information related to the work in different occupations—can be thought and organized for the adult education programme. As an illustration the instructional activities for agricultural occupation have been given subsequently. If one considers the work of a farmer he may find that:

1 A farmer has to till the land.
2. He has to plan which crops are to be sown.
3 He has to select and purchase seeds
4 He has to sow the seeds
5. He has to select and purchase the fertilizer
6. He has to water the crops.
7. He has to prevent the crop against diseases.
8 He has to prepare natural manure
9 He has to harvest the crop.
10 He has to thresh the crop to separate corn and husk
11 He has to sell extra grains and purchase the required things for the family.
12. He has to pay his bills
13 He has to get his instruments repaired whenever they are defective.
14. He has to keep the cattle for ploughing the fields, carrying load and for milk.

These are the major tasks which a farmer usually does. An effective programme of adult education if organized for farmers should facilitate their above-mentioned work and should make them more efficient for doing the same. This process would increase the production in the agricultural sector and would certainly improve the economic conditions of farmers. We know it very well that the quality of land in India is good but production is less. It is due to inadequate knowledge of farmers regarding their own work and technological developments which have taken place in the agricultural sector and due to the uncontrollable mighty nature. Now, the issue is what kind of knowledge can facilitate his work and make him more efficient. For this, the instructional activities have to be planned keeping in mind his work. To plan these activities the services of other officials like village level worker could be utilized. The information regarding high-yielding varieties of seeds should be obtained through correspondence and certain officials from the Agricultural University should be invited for giving talks. The new instruments from the agro-industries should be brought for demonstration. In this regard certain firms would be very much cooperative in doing this as it would be an exhibition of their products. For demonstration purposes the school farm should be utilized. In the same way for other occupations also resources related to them should be used, e.g. for potters in the village, the services of the technical staff of pottery institutions and industries could be utilized. Through the utilization of these resources the instructions can be made more relevant and effective On these lines some of the activities of farmers would be as follows .

1. The first task of the farmer listed earlier is tilling the land. For this he has to be instructed regarding the nature of soil. He should know the effect of air and sun on soil. He should be informed regarding the different kinds of tillers, harrows and their use. It should be demonstrated to him that he himself could observe their use and effectiveness.
2. In order to plan which crops are to be sown he should know for which crops the land is more suitable, their productivity and market value. The other factor which would help in planning is weather forecast although this information is not very accurate but will certainly help the farmer Therefore, he should be well informed about the weather forecast of the session
3. To select and purchase seeds he should be well informed regarding the different varieties of seeds, their productivity and sowing timings. The new research developments should be brought to his notice that he could use the latest and the best varieties.
4. To sow the seeds he has to be instructed about the time for sowing the seeds, techniques of sowing and precautions to be taken in sowing the seeds
5. Regarding the use of fertilizer he should know that which fertilizer is more suitable for a particular crop. When and how it has to be used
6. With regard to watering the crops he should be instructed when a particular crop is to be watered and how many times There are certain crops which require very light water like gram, but certain others require heavy water like sugar-cane
7. There are certain diseases which destroy the crops. A farmer should be instructed about the characteristics of different diseases that he could identify it He should be well aware of the preventive measures for different diseases The use of these pesticides is important, but the directions to be followed are essential otherwise it may prove to be hazardous.
8. In order to prepare natural manure a farmer should know the conditions in which the manure's quality would be better. He should know how to create those conditions which are conducive to the preparation of good manure.
9. For harvesting a crop a farmer should be made aware of the characteristics of riping stage of different crops and the modern techniques of harvesting.
10. For threshing purposes he should be made aware of different kinds of threshers for different crops He should know the cost of these instruments and their capacity too.
11. For selling his grains and purchasing the required things he should have an idea regarding the fluctuations in the market prices.

12. In order to pay his bills he should have some arithmetic skills
13. So far as repairing of his instruments is concerned most of the things he can get done in the village itself But for certain things like electrical instruments he has to run to the city. Many of these repairs are very minute which a person can do himself if he has functional skills in him. But, as they do not know it, for each and everything they have to depend on others and many times their work is stopped just due to a minor defect Moreover, the repairing charges are less but to carry things to the city costs a lot. Therefore, they should be trained in repairing the maximum possible instruments.
14. For keeping cattle he should obtain the knowledge regarding the animal husbandary He should know how to improve the quality of his cattle He should know the different varieties of cows and buffaloes which are more productive in milk.

When instructional activities are planned in this manner it would certainly help the farmers. This instruction would be useful for agricultural labourers also. The part of information particularly regarding the nature of soil would be beneficial for the people like blacksmith because he prepares the instruments for tilling the land. But this information may not be of any help for the person who is engaged in tailoring. Therefore, while organizing an adult education programme different occupations and the nature of their work should be the base of instructional activities.

So far as the place to conduct this programme is concerned the building and other equipments of the schools should be utilized. The schools in the village are village property and not of any individual. Therefore, there will not be any difficulty in using this community resource for adult education programme.

Organizational Implications

Organization of adult education programme on the lines indicated above will have certain administrative and organizational implications. As such a programme would be the regular feature of the educational system, the programme could be undertaken by the schools in the village itself with the help of education departments in the nearby universities or colleges. The programme could be organized twice a week in the evenings. The duration of the period could be about an hour daily. This programme has been suggested when a normal course of work is going on in the village. Otherwise, duration and timings have to be changed according to the situations at different times. For example, at the time of harvesting and at the time of sowing the crops the programme has to be stopped completely. In the same way during the rainy season when it rains continuously the programme could be organized daily and that too for longer periods. It shows that the programme has to be flexible regarding duration, time, location, etc This would make the programme more feasible considering the time available with an adult and regular teachers too. Also, it may not require additional staff for this purpose. So far as the services of government officials are concerned the education departments should get the necessary instructions issued to the respective personnel.

So far as building is concerned, it could be organized in the same schools where formal education is provided. The programme for ladies could be organized in the separate institution. There will not be any problem in this regard as the programme will be arranged in the evening.

The success of this programme would

depend on the dedication and motivation of the teachers, teacher educators and other community members in the area. These people could be motivated academically, i.e. by providing certificates to them for working in adult education programmes. This certificate should be recognized for its value at the time of promotion and recruitment. Not only this, they should be motivated financially also. For this purpose, appropriate honoraria should be given to the people engaged in adult education programmes.

Financial Implications

As such a programme undertaken by the schools with the help of education departments would certainly increase the expenditure of the school as well as the education departments. The resource for finance in this programme would be UGC, Ministry of Education and Social Welfare, State Boards of Education, social agencies, industrial agencies as at least those whose instruments would be exhibited for agricultural development, the Department of Education and the schools. In fact, this is the time when adult education must be given a front place in educational policies and budgets.

Conclusions

The utilization of resources for adult education programme has been presented in this paper with special reference to a particular village Similar approach can be adopted for organizing adult education programmes in a meaningful and effective way in other rural areas also, wherever the similar resources are available Organization of adult education programme as indicated above will have far-reaching implications for change and development in the village. The involvement of the teacher and other educated men and women in the village would make the programme more effective and faster. The teacher would help in motivating the clients to study. His second task would be to conduct survey to collect information regarding different occupations and the nature of work in which these adults are engaged. The services of educated ladies could be utilized for women folk If the programme is organized in this way it would be possible to influence the ways of living of the people and it would enable a person to do efficiently whatever work he is engaged in. ☐

The Pattern of Qualified Manpower-Flow and its Absorption in the Economy

A. S. ABRAHAM

THE STUDY aims at projecting a simple but unique feature that characterize the relationship between the educational system and the employing sectors of unplanned and mixed economies. This feature having emerged in the course of history, increases the 'waiting period' of qualified manpower. This study shows by a simple method that the existing pattern of manpower-flow from the educational system and its absorption in the economy are such that the qualified manpower is kept in reserve, i.e. in waiting from which the lagged manpower requirement of the economy is met. The study finally observes that this manpower reserve and lag in its absorption could be avoided by restructuring the instructional system on the one hand, the pattern of job creation on the other.

Investment for development in a planned economy invariably has reference to a period of time ranging from one year to 15 years and above. Even in an unplanned economy, though the planning is not centralized, restrictive and selective and though the sectoral and production unit level planning or budgeting is not integrated with a national planning framework, planning continues to be an integral part of the investment at the level of individual units and industry. Such investment planning also refers only to a particular period of time. But even the planned investment, conventionally or otherwise, has no reference to any particular point(s) of time. There is no systematic time pattern or frequency in the investment during a period. For this reason, job creation during a year, say, during a financial year, is not equally distributed over 12 months of the year. Thus, as the creation of jobs is linked up with this investment, there is little regula-

or there is no systematic time pattern in the job-creation also (There are, however, certain sectors, for example, the educational sector, in which job creation has a fixed time reference.)

There may, however, be several factors that decide such irregularity of investment as of job-creation, within a particular period of time. The supply condition or the pattern of manpower-flow from the educational institutions does not, however, influence in any way this irregularity in the job-creation during a period. This irregularity though undesirable for the manpower output of the educational system, as will be revealed later in the analysis, is a unique but inevitable feature of unplanned economies.

Supply of manpower from the educational institutions, however, has a regularity as a marked contrast to the irregularity in the absorption of this manpower to the economy. The instructional system is planned in these unplanned economies in such a way that this terminates at a particular point of time for almost all the courses and, therefore, all the qualified manpower flows out to the labour market at a particular point of time. That is, there is a regularity in the flow of manpower from the educational institutions. There is thus an absolute lack of correspondence in the timing of manpower-flow and its absorption.

Assume that the manpower of a particular category after completion of training at the educational institutions flows to the labour market on a particular day (say, 31 December 1977) of the year t-1. (This study is concerned with that qualified manpower which finally turns to the labour market.) This output will meet the manpower requirement of the economy (say, from the first to the last day of the year 1978) during the year t (current year). As there is lag in their absorption in the economy, the output of the year t-1 is kept in reserve from which the lagged manpower requirement is met as and when needed. The output of a previous year t-1 is treated as a reserve (Rt) during the current year t. The manpower requirement of even the last day of the current year is to be met from this reserve which thins down by the end of the current year.

This reserve and pattern of absorption from this reserve, though simple, is illustrated by a hypothetical employment chart of a year (see Table). We have 12 time points of employment corresponding to 12 months of the year t, i.e. the current year 1978. This reserve and pattern of absorption are explained with reference to two economies (*i*) where the employment of the current year t equals to the output of the previous year t-1; (*ii*) where the employment of the current year is not equal to the output of the year t-1.

Firstly, it is explained what portion of the output of 1977 constitutes the reserve at each point of time in the first reference. In this economy, it is assumed that the employment position of each month is known earlier and graduate output from the educational system is planned accordingly[1]. One hundred and twenty engineering graduates' output of 1977 is planned in such a way that there will be no surplus or shortage at the end of the year 1978. Col. 2 shows the number of positions in different months. Col. 3 and

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[1] In actual practice, it may not be possible for the educational system to adjust itself to such short-term requirement unless the short-term planning is a part of the long-term planning in which any scarcity or surplus due to lag in the adjustment that arises in the short-term will be taken care of and a balance is maintained in the long run

4 show the actual employment and the size of reserve in each month. We have a reserve of 120 graduates (which is the output of the year t-1) on the first day of January 1978. From this reserve 20 graduates are employed filling the job positions of January 1978. Thus 120—20 =100 becomes reserve for the remaining 11 months. This reserve thins down to 2 which is absorbed by the end of the year so that surplus or shortage does not exist There are reserves of different sizes during the 12 months and this reserve thins down to zero by the end of the year. Thus when the manpower output is planned in accordance with the requirement, the output of the previous year t-1 equals employment of the current year and there is no surplus of manpower output unabsorbed by the end of the current year t, i.e. there is no excess graduate output over and above the current year's requirement.

Now it is possible that due to various reasons, internal and external to the economic system, the actual employment is not equal to the number of positions planned. This discrepancy is a cause of concern only if this is a permanent phenomenon which might lead to a large-scale accumulation of unemployed.

A situation of this kind is shown in

Table

MANPOWER IN RESERVE AND LONG-TERM UNEMPLOYMENT

	Reference 1					*Reference 2*		
Period of Employment	*Job Positions*	*Actual Employment*	*Reserve*	*Actual Employment*	*Reserve*	*Job Positions*	*Actual Employment*	*Reserve*
1	2	3	4	5	6	1	2	3
1978								
January	20	20	120	16	120	15	17	200
February	20	20	100	18	104	14	17	183
March	18	18	80	15	86	13	15	166
April	17	17	62	15	71	11	13	151
May	17	17	45	16	56	10	10	138
June	10	10	28	8	40	7	10	128
July	5	5	18	4	32	6	9	118
August	4	4	13	3	28	6	9	109
September	3	3	9	3	25	5	8	100
October	2	2	6	2	22	4	5	92
November	2	2	4	2	20	4	3	87
December	2	2	2	2	18	2	2	84
	120	120	0	104	16	97	118	82

Col. 5 and 6. The actual employment is less than the available positions (col. 2) causing a total of 16 graduates 'long-term unemployed'[2] at the end of the year 1978. We observe an increase in the number of those in reserve during different months

We now consider the case of an economy in which there is little scope for restricting the demand for education and where this demand for education hence the manpower output from the educational system has little influence on the employment creation which is by and large determined by the market forces of demand and supply.[3] In this economy, for various reasons, the forces determining the demand for education are stronger than those which help their realization. In such a situation the expansion of educational system and, therefore, the manpower supply tend to be larger than the manpower requirement. However, in unplanned economies for various reasons, the actual number of employment positions could be more or less than the declared or announced ones.[4]

The Table (Reference 2) depicts a situation in which the actual employment is more than the announced job positions. The Table gives a graduate output of 200 of the year t-1. We do not know the number of positions during different months of the year t (1978). But the job positions and the employment pattern of the year t is known later in the year t+1 (1979) and assume that they are as shown in Col. 7 and 8. A total of 118 graduates were employed during the 12 months as against the announced positions of 87 (Col. 7). We note that about 96 graduates are not required even by the end of the year 1978 Besides, excess manpower output and low manpower requirement of the economy tend to increase the number of graduates in reserve during different points of time as shown in Col. 9. Similarly, when the actual employment is less than the declared positions, the number in reserve increases.

In unplanned economies, dimension of this reserve may be larger as there are no formal restrictions enforced by the educational system on the demand for education, enrolment and finally on manpower turnover. However, as the certainty with which the economic activity is carried out is unpredictable in such economies, there could as well be a situation like the economy showing quick responses to anticipated business boom absorbing all the available qualified manpower (graduates in our example) by the end of the current year. Even an opposite situation of slump in business activity resulting in large surplus of manpower output is also not ruled out.

Thus both in unplanned and mixed economies, qualified manpower output of the educational system of a year t-1 could be treated as manpower in reserve for the current year t. The reserve is that portion of the manpower output of the previous year kept in waiting to meet the lagged manpower requirement of the economy during different points of time in the current year. The output of the previous year is treated as reserve for one year only (during the current year) because of the annual flow of qualified manpower from the educational institutions. That part of the output of the previous year not absorbed even by the end of the current year is treated as long-term unemployed. Long-term unemployed is the residual of rěserve.

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[2] In the countries surveyed for an OECD report, the duration of unemployment designated or generally accepted as long-term ranged from two months and over two years and more. (See the Report, 'The long-term unemployed' by Adrian Sinfield, OECD, Paris, 1968, pp. 24-26.

[3] See *Manpower in a Free Society* by Richard A. Lester Also, Soviet and American Higher Education · Magnitude, Resources and Caste by Nicholas Dewitt in *Economic Aspects of Higher Education*, OECD, Paris, 1964

[4] See Laster. R.A. op. cit., p. 36

It is, however, possible that this residual is large enough to meet the requirement of another year and one might even treat this residual also as reserve as all the manpower output of the educational system is kept in waiting to meet the lagged requirement of the economy. But why is it reserve for a year only? Firstly, as there is annual flow of manpower from the educational system, it is appropriate to treat the reserve for a year only; secondly, this is to emphasize the need for limiting the manpower output to the requirement; thirdly, it is for the convenience of analysis especially in the context of unavoidable lag in the absorption of manpower in the economy.

This lack of correspondence in the timings of manpower-flow from the educational institutions and its absorption in the economy in productive employment prolongs the waiting period of manpower This in turn produces negative welfare effects. Even assuming that there is no long-term unemployment, i.e. there is no excess manpower over and above the annual requirement, keeping the manpower output in reserve for periods ranging from one to 12 months involves heavy loss of income apart from the loss on the psychological plane. The reserve thus involves both individual and social costs. When the residual of reserve (long-term unemployment) is large, this cost element assumes staggering proportion.

The welfare aspect of the reserve of human capital calls for corrective strategy that will minimize the individual and social costs involved in keeping them in reserve for different periods. Could we do away with this reserve if the educational system alone is altered and/or if the pace and nature of manpower absorption in the economy is altered? A major objective of this study is to seek its answer. But this calls for planning and experimentation However, a few tentative proposals are given below.

(*i*) The first and the most important effort in this direction is to modify the pattern of manpower-flow from the educational system. The manpower-flow could be altered by restructuring the instructional system in such a way that there are more terminal points in a year for a course than there are at present. This again necessitates changes not only in the pattern of enrolment and its timings but in the instructional framework also. Proper planning at all the above levels (such as enrolment, its timings, instructional patterns, etc.) could make it a successful experiment. This is perhaps the only feasible measure that can be effectively carried out at the instructional level to alter the manpower-flow. When the terminal points in a year are increased, the period of waiting is reduced.

It has been shown that in the present set-up, the pattern of manpower absorption to the economy is not influenced by the pattern of manpower-flow from the educational institutions. Therefore, an independent alternative manpower-absorption policy has to be evolved.

(*ii*) Organize the investment (for job creation) in such a way that all the manpower requirement is met in the beginning of the year so that the output from the educational system does not have to wait for long periods. This might appear to be a highly restrictive measure for the following reasons : one, the decision on investment and employment are influenced more by the market forces ; two, there are numerous units of production and services and it may not be easy to control the job-creating investment of all the units in order that the job positions are made available in the beginning of the year (the year refers to that in our example). Despite these, this measure could successfully be carried out by means of legislation binding upon the employers to fill their job positions early in the year, i.e. immediately after the qualified manpower flows to the labour market.

(*iii*) Employing units recruit qualified manpower in the beginning of the year, i.e. immediately after the manpower flows to the labour market and give them job-training until they are actually absorbed in their respective jobs. During the job training period, they could be given a stipend atleast equal to the amount this training contributes to output. If this measure also is enforced by legislation, its success will be assured

(*iv*) Alter the patterns of both the manpower-flow and the manpower recruitment in such a way that there is absolute correspondence in their timings which are systematically increased to a number larger than what is at present. That is, the number of terminal points of course (s) in a year is the same as the number of times the manpower is recruited to productive employment. If this measure is properly experimented and gradually implemented for all the courses, the waiting period of manpower—a curse of the existing system—can be minimized. Further, the above measure will minimize long-term unemployment, unless the manpower output is too large and/or the potential of the economy to absorb the manpower is too weak.

The long-term unemployment, i.e. that part of the manpower output of the previous year that is not absorbed in productive employment during the current year, which is the residual of reserve, is a permanent phenomenon in unplanned economies. Their number and their period of waiting have not been ascertained in the context of India. Negative welfare effects of long-term unemployment is larger than those in the case of manpower in reserve. This, however, cannot be solved without substantial increment in the developmental investment properly allocated within the framework of educational and employment planning ☐

Mobility Orientation of Higher Secondary School Teachers

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ONE OF THE important aspects of the analysis of occupational mobility is an inquiry into its attitudinal component. This is the subjective aspect of the mobility, the analysis of which throws light on the future behaviour of the individual The attitude of individual towards willingness to move from one place to another and from one occupation to another are in fact important indicators of future mobility. In traditional society where conservative values are more cherished, the attitude of the people towards occupational changes are more or less static. As, for example, in traditional Indian society the caste system has determined the place of individual in the pre-ordained occupational hierarchy. It was beyond the power of an individual to shift his place in that occupational hierarchy. But in the modern Indian society where the occupations are becoming open, and individual's ability is the sole criteria of entering into different occupations, it is expected that individual would like to move from one place to another and from one occupation to another for higher economic gain, security and prestige in the society It is in this context that the analysis of the attitude of the individual towards spatial and occupational mobility is of much significance. In the present paper an attempt has been made to analyse the attitude of the higher secondary school teachers towards change of occupation. Such an analysis will throw light not only upon the sources of satisfaction or dissatisfaction of higher secondary school teachers towards teaching profession but it will also point out the barriers which exist in their upward social mobility.

The Sample

The sample for the present study has been chosen from the higher secondary school teachers of Varanasi city. The sample consists of 200 teachers who were selected on random basis The sample consists of 35 teachers belonging to the age-group 20-30 years(younger age-group), 95 teachers belonging to the gre-group 31-45 years (middle age-group) and 70 teachers of the age-group 46-60 years (older age-group). Sexwise, the sample consists of 155 male teachers and 45 female teachers. Castewise, it consists of 106 Brahmins, 32 Kshatriyas, 34 Kayasthas, 15 Vaisyas and 5 Kurmmies. There are 5 Muslims and 3 Christians in the sample. The collection of data has been done through the use of a structured interview schedule.

Analysis and Interpretation of Data

The respondents of the present study were asked to state if they were given an opportunity to earn more at some other place, would they like to move from their present place of work to that place. They were further asked to enumerate the conditions under which they would or would not like to move.

Willingness to Move

The inquiry into the willingness for spatial and occupational mobility reveals that of the 200 sample teachers as many as 70 (35 per cent) respondents say that they would like to move from one place to another in case they have a chance to earn more money. But the majority of the respondents (65 per cent) seem to be against such change of place. This supports the contention that teachers, by and large, are home-bound since the majority of the teachers in the sample does not like to leave their place of work and go elsewhere, even if they have opportunity to earn more money. Thus, economic consideration alone does not seem to be an effective incentive to these teachers with regard to moving to some other place.

Reasons for Willingness to Move

When asked for the reasons for showing willingness to go elsewhere for service, most of the respondents (25) say that they will go if the nature of work is the same, i e they will change from teaching profession here to teaching profession elsewhere Another 20 respondents have stated that they will move to some other place if the profession elsewhere is not only economically gainful but also prestigious. Some of the respondents (10) are fed up of their present job, and as such, they would not mind to move elsewhere to join a more economically gainful job Some respondents (8) wanted to move only if they were provided with some government service which provides high prestige, economic gain and also security. Some respondents wanted to move on account of some personal or family reasons. Some of them (6) stated that they have tensions in their families here, and to avoid the same, they wanted to move elsewhere. One female respondent stated that she would like to go elsewhere provided her husband also moves.

Reasons for Unwillingness to Move

Most of the respondents in the sample were unwilling to move There are many reasons for the same which may be grouped under three categories : familial, professional and personal.

FAMILIAL REASONS : Among the familial

reasons, the respondents stated that they have a large-sized family (stated by 20 respondents) and their homes are in Varanasi (stated by 12 respondents) and their children are studying in Varanasi (stated by eight respondents) as such they are unable to move There are others who stated that because their kith and kin are here (stated by three respondents), so they will not move. Thus, the family and kinship ties and the heavy family responsibilities constitute important factors which hinder respondents' geographical and occupational mobility

PROFESSIONAL AND INSTITUTIONAL REASONS : Twenty-three respondents gave some professional and institutional reasons for their unwillingness to move elsewhere. Among these, the most important one is the attachment with the educational institutions which they served (stated by 10 respondents). Six respondents stated that their present teaching job gave them utmost satisfaction and as such, they will not like to move. Four respondents said that they love the subjects which they are teaching at present Three respondents were not willing to move because of the academic environment in their educational institution.

PERSONAL AND SENTIMENTAL REASONS : Some of the respondents stated certain personal and sentimental reasons which reflect their bent of mind. A great number of these respondents (18) did not like to move on account of their old age. Eleven respondents did not have an interest in any other job. It is interesting to note that a considerable percentage of older age-group of 50 years and above was too much attached with the city of Varanasi which is a religious centre. And to the religious-minded ones, it is a place worth living. These respondents on account of their religious faith and sacred characteristics of the Varanasi city did not like to move elsewhere. On the basis of such analysis of the facts it may be concluded that some teachers are governed by extra professional loyalties and religious beliefs which act as hindrance in their way to occupational mobility.

Social Variables and Mobility Orientation

The age-wise distribution indicates that as we move from younger age-group to older age-group, there is a progressive decrease in desire to leave the present place. The older age-group respondents appear to be most conservative. They have shown their unwillingness (81 43 per cent) to move from one place to another even if they have opportunities to earn more money. As against, the younger age-group respondents comparatively in a higher percentage (51.43 per cent) have shown willingness to move from one place to another.

Age also seems to be an influential factor in shaping the attitude of respondents towards occupational mobility. The younger teachers are more prone to occupational shift. Because of their younger age and comparatively less family burden, they are ready to move from one place to another. As for the older ones, it appears that the old age coupled with heavy family burden seems to hold them back from moving out. Being elders, they have to look after a large number of members in their families Education of the younger ones, care of the family members and likewise other manifold responsibilities for the family make it impossible for them to move from one place to another, even if better economic opportunities are offered to them. Thus, age coupled with family obligations seems to be the important determinant of the mobility orientation of these higher secondary school teachers.

As between the two sexes, it will be seen that both among the male and female teachers, the majority is unwilling to move but this unwillingness is comparatively higher in the case of the female respondents (77.78 per cent) than in the case of the male respondents (61.29 per cent). The unwillingness of female respondents to move from one place to another may be accounted for many socio-cultural factors. For example, as the climate of opinion prevails in Varanasi, it is difficult for female members to live away from their family · The joint family system and the traditional notion about women's participation in economic activities are hindrances in the way of occupational and spatial mobility of the women teachers.

Let us now see what features are revealed when we analyse the castewise data. It has been found that in all the caste groups the percentage of these respondents, who do not possess a desire to move, are higher. Only in the Brahmin group a significant percentage of respondents (37.74 per cent) is willing to move. It signifies, as far as our data go, that Brahmins are comparatively more mobility-oriented.

Conclusion

The analysis of the subjective component reveals that most of the higher secondary school teachers are not prepared to move from one place to another, even if they have better chances to earn. The most important reason is heavy family responsibilities at home which creates problems in their mobility. Apart from this family reason, old age, attachment with Varanasi city and attachment with the educational institutions in which some of the respondents are working, are some of the other important reasons which hinder their mobility. Thus it may be concluded that the most important barrier in the upward mobility of the higher secondary school teachers are their heavy family responsibilities. It prevents their mobility and debar them from achieving better economic position. The security of the present job and opportunity to look after their family are to them the most important things than to move from one place to another for better economic opportunity. □

Environmental Studies in the Primary School

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THE PRIMARY SCHOOL system is the largest part of any country's education system. A closer look at what primary schools teach and how they teach it reveals uncomfortable facts. In most cases the curriculum in the schools is inappropriate to the needs of the children and the community. The teaching in many schools is formal, unstimulating and inefficient. "Education", the Kothari Commission (1964-66) has stated, "is a three-fold process of imparting knowledge, developing skills and inculcating proper interests, attitudes and values". It points out that our schools mainly concentrate on imparting bookish knowledge and neglect the other two aspects of education as the curriculum makes inadequate provision for practical activities and experiences. Moreover, as the development of useful skills and the inculcation of the right kind of interests, attitudes and values are not given sufficient emphasis, the curriculum becomes not only out of step with modern knowledge, but also out of tune with the life of the people

In order to upgrade and improve the school curriculum, the Kothari Commission advised the removal of false barriers in learning in the primary school. It is, therefore, recommended that environmental studies—embracing science and social studies—be included in the lower primary stage rather than separate disciplines of science, history, geography and civics. The Unesco report, *Learning To Be*, also emphasizes the process of learning, particularly self-learning. The method of teaching should change in the direction of helping pupils to learn better and on their own, not only in the school but also outside the school.

As a matter of fact, the Patel Committee has rightly stated that :

> We venture to suggest that the premium on bookish knowledge in India can only be removed by a complete change in the structure of the curriculum and allotment of time to the area of work. This can only be done if more emphasis is laid on activities and experience rather than formal instruction[1].

Thus the need to achieve the three-fold process of education and to remove the artificiality of compartmentalizing learning in the primary school has been felt the world over One answer to this is an approach in education which is known as environmental studies approach. It has been successfully used in Britain where much literature, resource material, children's work-books and teachers' guides have been published. In India, it has been introduced for the first time in the ten-year school curriculum developed by the NCERT. The concept of environmental studies as given in *The Curriculum for the Ten-Year School · A Framework* (NCERT, 1975) is that in primary classes the sciences and social studies should be taught as environmental studies; in Classes I and II as a composite course including both the natural and social environment, and in Classes III, IV and V as two subjects—Environmental Studies-I (natural science) and Environmental Studies-II (social sciences).

The Patel Committee has recommended the inclusion of health education along with social studies and nature study under environmental studies. This recommendation of the Patel Committee is very sound and logical in view of the recommendation of the Kothari Commission (p. 188).

Meaning of Environmental Studies

All parts of the earth and its people, past and present, and the heavenly bodies that we can see are all part of our environment which the children should find out and learn about. However, with junior children we must give them as much direct experience with their environment. The Kothari Commission states that :

> At the lower primary stage the child should receive instruction in the basic tools of learning such as, reading, writing and computation and learn to adjust himself to his surroundings through an elementary study of his physical and social environment He should participate in activities which develop his constructive and creative skills and teach him the habits of healthy living... (p. 187)
>
> The study of the environment will be largely informal in the beginning and will be provided by making the child observe his immediate social and physical surroundings and talk in class what he observes In Class III environmental studies will gradually lead to social studies and science which may now be treated as regular subjects, but in a very elementary manner. While the activity method will permeate all teaching, special activity in the form of music, art work, dramatics and handwork should be organized for creative self-expression. Health education will stress the formation of good health habits

Thus environmental studies is an approach through activities based on the child's physical and social environment, which leads to the progressive development of attitudes and skills required for the observation, recording, interpretation and communication of scientific, historical and geographical data. However, the approach can overflow into language, mathematics, art/craft, drama, music, moral and aesthetic education.

Aims

According to the Joint Working Party Report on Environmental Education, UK:

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[1] I.J. Patel. *Report of the Review Committee on the Curriculum for the Ten-Year School*, NCERT, 1977.

environmental studies in the
ool is to assist in the acquisition
ve development of basic skills
, to provide a source and sti-
ative work and to give oppor-
naking discoveries at first hand.
ch should lead to the develop-
eness of personal environmental
es

impossible to give detailed
ch can be applied immedia-
tuations, it is nevertheless
utline some of the aims and
ch all teachers should have
n considering the potential
lar situation for environ-
s Some of the basic aims
ntal studies work can be ex-
llows .

ve the student experience of
proach to learning by en-
.
se the student's personal
sts and abilities as the in-
ion for his involvement in
e range of related activities.
ncourage the student to
op attitudes of care and con-
for his environment.
ncourage a spirit of cooper-
between the members of
ass or group, while at the
time encouraging individual
eliance.

nmental studies approach
d and conscious use of all the
he environment in the edu-
s. Therefore, the objective
cular curriculum or scheme
out to achieve need to be very
specifically defined in terms
d ability levels of the students at the primary level and particular circumstances of their situation.

Some suggestions are offered below as a guide to teachers engaged in formulating their own list of objectives These suggestions have been given on the basis of the objectives of primary education as stated in the *Report of the Education Commission (1964-1966)*, *The Curriculum for the Ten-Year School · A Framework* (NCERT, 1975), and the *Report of the Review Committee on the Curriculum for the Ten-Year School* (NCERT, 1977) Apart from this, while framing objectives for environmental studies work the suggestion of the Council for Environmental Education, University of Reading, U.K. has also been taken into account Thus in the course of the work the student should develop :

1 The ability of acquiring knowledge through observation, study and experimentation in the areas of social and natural sciences.
2. The ability to use the vocabulary necessary for accurate recording of information from the environment, and for creative self-expression.
3 The ability to demonstrate mathematical skills, including the measurement of dimensions, counting and recording, estimate of relative sizes, use of measuring instruments (e g ruler, calipers, tapes)
4 The ability to record information in a variety of other ways, including sketching and casting, and to use these various skills for creative self-expression
5 The ability to analyse information gathered by the above methods and to present it in a variety of concise forms, including graphs, histrograms, pie-diagrams, charts, flow diagrams.
6. The ability of acquiring skills for planning and executing socially useful productive work with a view to making education work-based.
7. The ability of acquiring habits of cooperative behaviour within the family, school and community

8. The social responsibility by inculcating habits (individually as well as collectively) of appreciation of the culture and life-style of persons of other religions, regions and countries; and readiness to serve the weaker and the deprived
9. The desire to participate in productive and other process of community life and to serve the community.
10. The habits of cleanliness and healthful living and an understanding of the proper sanitation and hygiene of its neighbourhood.
11. The ability to express itself freely in creative activities and should acquire habits of self-learning
12. The ability to assess the information from all sources to draw from it rational comparisons and conclusions concerning the relationship between man and his environment, and begin to formulate a personal scale of values and opinions concerning the management of society and man's surroundings
13. The ability to work without constant supervision in cooperation with other members of the class or group

Method

Very little formal teaching in environmental studies goes on at the primary level. The Patel Committee Report has rightly recommended: "We wish to stress the need for a change in the approach to the learning process in these classes (I-IV/V) We feel that there is need for more creative and joyful activities than formal instruction Formal instruction must be reduced to a minimum...". Thus in this kind of learning process the teacher rather becomes an adviser, director and responsible for the provision of learning situations Sources for ideas should depend initially on the child's own environment.

The method is 'centre of interest' or work radiating from a starting point in the environment Children must be given as much direct experience as possible throughout the work The environment can be used as a stimulus for creative expression Start with the direct impact of the environment on the child and the child's individual response to it. The teacher should be prepared to follow the personal interest of the children, who either singly or in groups follow divergent paths of discovery. Ideas that are listed and can be followed, should be divided into main topics and subsidiary topics. The main topic can be a starting point or centre of interest for a class or group.

The work is not to be all 'teacher-led'. If the children can follow out the work they are interested in and want to do, their work and experiences should be of higher standard. However, it is good for them to work within limits in a main topic. If an idea is not forthcoming, teachers might have to lead the children in direct way on to the idea. An enthusiastic teacher can often inspire children. In individual topics the children can have free choice. Teachers will be much concerned with organizing the class so that the best can be obtained from the children, and helping them to experiment, investigate, discover and record for themselves. Sometimes assignment cards can prove helpful, especially if a child is lacking ideas. Teachers should try to avoid setting all the work on to assignment cards. Practical work and the first-hand experience is just as important as reference work using books. The work and experiences can be carried out in class, group and individual work. For a main topic, it is best to start off altogether as a class and then divide up into groups or even individually, and report back to class using displays, paintings, and other art work, models, specimens, graphs, drawing, writing and cut-out materials in project scrap-books or folders, maps and charts. The teacher must lead children into covering all aspects of a topic such as geographical, historical and scientific. Naturally, in some topics these aspects cannot be perfectly balanced. This does not matter as long as the three aspects are covered. In subsidiary topic this is not necessary as some of the topics will cover only one or two aspects. Of course, subsidiary topics can be used within the framework of a main topic or arise from a starving point.

The emphasis throughout the course of work should be on individual and group inquiry work by the students themselves, involving the use of as wide a variety of resources and local contacts as possible. In addition there should be an emphasis on the discovery of the inter-relationships which surround features of the environment and the problems and conflicts which can arise in connection with man's attempt to alter or control his surroundings. Cooperation and communication between the various investigatory groups or individuals should be encouraged, and the principles and concepts which emerge from the local studies should gradually be examined at national and world level, broadening the students' outlook and preventing the investigations from being too narrow and parochial.

Choice of the Study Site

The actual choice of a starting point will depend on many factors and the details of the lines of enquiry which can be followed will vary greatly from situation to situation. Any suitable environment can provide a host of starting points from which environmental studies work can be developed, for example, a school playground, garden, a tree, a street, a market, the local water supply, and so on. With all these starting points valid inter-disciplinary studies can take place provided the students are given sufficient guidance and are encouraged to look at all aspects of the situation under study.

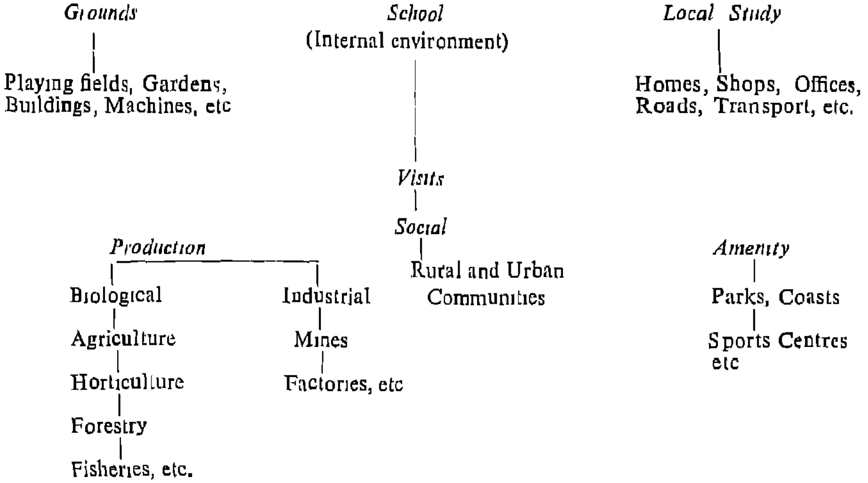
In its chapter on 'Socially Useful Productive Work', the Patel Committee has suggested the following common activities for Classes I and II under environmental studies :

> Exploration of productive manual work and service situations at home, in the school and in the community, through observation and enquiry The children identify the productive manual work and services going on around them, they observe who perform these work, and how they are performed. They get familiar with the raw materials and tools used in the different types of work and the method of manipulating them They discuss the importance of manual work going on around them, realize their own role in the performance of these and learn how could these be performed in a better manner They record their experience through verbal and non-verbal media.

About the common activities for Classes III, IV/V under environmental studies, the report further states :

> Exploration of productive manual work and service situations at home, in the school and in the community related to the basic needs, viz (*i*) health and hygiene, (*ii*) food, (*iii*) clothings, (*iv*) shelter, (*v*) recreational and cultural activities, (*vi*) community work and social service. The method of exploration will be similar to that in the previous classes Record-keeping through graphic and varbal media may be emphasized.

A question is being raised by many that in the environmental education whether one should teach from or for or about the environment. The answer is that in the early stage the child should be taught from the environment. Gradually he should be taught for and about the environment. As a result the child will not only learn to understand his environment but also he will develop a liking of preserving the environment. Thus the best way of imparting environmental education to the child at the primary level is to give more emphasis on the local studies as shown in the following flow diagram.



The Teacher's Role

In the teaching of traditional subjects by traditional methods, the teacher's task is straightforward and simple. The amount of information to be absorbed is decided by the teacher and the children's retention of this will be great or small according to their interest and ability. But the environmental studies approach places greater demands on the teacher. Under this system the teacher is rarely the dominant figure, but has complicated functions as mentioned below[2] .

(*a*) To arouse the children's interest.
(*b*) To discuss the approach to problems or topics.
(c) To organize the class into working groups, prepare work cards and group guide sheets.
(*d*) To arrange visits or expeditions
(e) To provide reference materials for the children's use.
(*f*) To provide materials needed for practical work.
(*g*) To arrange for visiting speakers
(*h*) To discuss and guide the progress of each group
(*i*) To initiate and develop discussion and debate.
(*j*) To persuade each group of children to explain their work to the rest of the class and summarize the result
(*k*) To provide facilities for displays and exhibitions of the work carried out.
(*l*) To link the work with the wider world.

Conclusion

Every child from its birth is influenced by his immediate social and physical environment. If properly utilized, the environment can become an instrument of education modifying traditional patterns. All teachers are aware of the cliches "from the concrete to the abstract" and "from the particular to the general", yet very few really put them into practice. The environmental studies approach help to make these precepts a reality The pupil is led to planned and directed explorations of his immediate environment --classroom, school compound, school neighbourhood—and he will later relate these first-hand experiences to his study of the larger area of state, country and world.

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[2] Adapted from G A. Perry, *et al.* The Teacher's Handbook for Environmental Studies Blandford Press, London, 1974, p. 31.

Teachers frequently complain of the lack of suitable textbooks in the environmental studies subjects for primary classes. But they ignore the cheapest, and most up-to-date textbook—the environment. Every environment, whether urban or rural, offers varied opportunities for exploration. However, it must be remembered that the environment will not yield up its riches unless the teacher himself has carefully explored it, noted its interesting features and possibilities and then planned for the children's activities and study. The teachers have to provide the resources from the environment for learning by the young child so that the child will discover knowledge and not just cram information from the textbooks. Education, specially in the primary stage, should not lead to an overloading of the child with too many books and too much of subject-matter. This is the period when the rate of learning is fast and the teachers should take advantage of it by adopting environmental studies approach. One thing should be remembered that new syllabuses are imposed on schools for their own good, and if the medicine proves a little difficult to swallow, teachers are nevertheless expected to realize that it contains the best ingredients. ☐

The Concept of Man in Education

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I

THE CONCEPT OF MAN in education is as old as civilization itself. One does not know for certain, when, at the dawn of history, *homo sapiens* became civilized. With civilization, however, came art, tools and habitat, and with these aspects of culture, it was but natural that there should be a process and a procedure by which the objects of material culture could be preserved and passed on to the progeny, so that they should not only benefit from the experience of their previous generation and live well, but, whenever possible and wherever necessary, develop these further. So, education was a necessary component of culture. But it was not only in material culture that there was a need for education; it was needed equally, if not more, in social culture. It was necessary for man to develop forms and methods of control of individual and group behaviour, within the family as well as outside it. When man achieved some semblance of an order in social life, he had educated himself. When he discovered the process by which he could transmit this knowledge and develop the attitudes and values which help achieve some harmony and balance evidenced in any social organization, he had discovered education Thus, education is linked closely with culture and civilization and has been, perhaps, coexistent Of course, education has different shades of meaning, and there is no intention here to suggest that education in the sense of schooling appeared at the same time as culture and civilization. In any sense of the term 'education', there is always a concept of man, either explicitly or implicitly, involved in it. For without a concept of man, a human being who has produced culture and has been been civilized by it, it is difficult to understand what education is all about, unless one means by education, the cramming of lessons, to which unfortunately it does degenerate, mercifully, for some time and with some people.

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Education is a word which has various shades of meaning It is commonly understood as a school which includes all institutions where pupils learn from teachers. To educate a child, one sends him to a school The longer the time one devotes to learning in a school, moving, during this time, from a school at lower level to a school at higher level, viz. the university, the more one is educated We admire persons who are highly educated and pity those who have not had the benefits of higher education. Being educated means being schooled This meaning of the word 'education', has, thus, a reference to an institution, where learning takes place under the guidance of a teacher and involves a curriculum, books and examination. It is through the institutionalization of learning that a culture exercises control over the new generation and ensures its continuity. Every society has control over its schools, in one form or the other, directly or indirectly, by the state or by public opinion. The school is established, maintained and recognized by the society through its laws, codes, custom or tradition. The intolerance of new schools of thought and practice, in the history of educational development, only illustrates this social control. In the matter of teachers, there is equally a great deal of social concern over selection, training and recognition of teachers Great teachers outside the school have been rare and, more often than not, they were ostracized and punished severely, to the point, at times, of being executed. Books, traditionally, have been written by scholars, but prescribed for study in the school. Above all, an examination system ensures that only the desirable things are learnt in the school. Most often, in the name of standards, examination is used to maintain control over what is learnt. The school is, thus, a necessary part of the process of socialization, and it is through the institutionalization of learning that each generation ensures that the next generation grows up in the image of the previous one, thus maintaining continuity of tradition and culture

Typically, however, all people in a society or culture do not control the school, only the chosen few do it. They may be chosen by the God, by the King, by the State, by the people, or by themselves. It is their image of man as man should be—which is reflected in the school, through its teachers, curriculum, books and examinations. So long as this image of man is imbibed, in thought and deed, through the school, the purpose of education is served and they, the chosen few, are happy, and most often, also the rest of the people in a society. But the process of history has its inevitable effects on a society. Whereas a society tries to conserve itself, it is affected by processes or changes, either within itself, or outside it, or both. Demands arise, from new experiences, for new ideas, ideals and practices. Those who were the chosen few are replaced by others who reflect new values, attitudes, ideas and practices in a new image of man as he should be. This new image is then reflected in education. The school thus moves from crisis to crisis, as in the inevitable course of history a society moves from one equilibrium to the next But the school always reflects an image of man through its curriculum which the society at any stage of its development has endorsed. This shows the essentially conservative nature of education as an instrument in the hands of society

In another sense of the word 'education', we understand a *process* of learning which brings one closer to an ideal. It is a process which can take place anywhere and at any time. It can be for only some time in one's life-span. It may take place in an institution, like the school, and it very often does, at least it is presumed to be; but it need not necessarily be linked to the school. The important thing is that it is a process of learning and not a procedure of a product. Very often education means the procedure, as in the school, or it means the product which is an outcome of learning in the school, viz the knowledge, skill, etc. of an educated person. As a process of learning, education does not involve a concept of man. Much of the psychology of learning could develop on experiments with animals because the concern was with the process by which behaviour is acquired or shaped. But education is much more than a process of learning It is a process embedded in a value-matrix which gives the process of learning a meaningfulness and character, which it would not otherwise have One may point out that there is a value-matrix even in the process of learning in a psychology laboratory, e.g. when a rat learns to press the lever in order to obtain pellets, a reflection of a particular kind of economic order. But the rat has not chosen the value system, the psychologist has. The process of learning of the rat is not aimed at incorporating the values, neither of the rat culture, nor of the psychologist, whereas in education, one aims at incorporating a set of values It is a process of learning by which a human being changes from one state to another state of existence, the difference between the two states being that the second one is closer to an ideal image of man than the first one. The ideals, one may argue, is like the Skinnerbox in psychology; it is given as much to the rat as to man. But a man may choose, if he so desires, his ideal, towards which he strives to move, and that process of learning which helps him to move in this direction of education. Very often, however, man does not choose. He has a fear of freedom. And so he allows his ideal to be chosen, an image of man which is perhaps very much against his grain, but towards which he nonetheless feels impelled to move. But luckily, all men are not like this. There are men (here I must mention the sex) and women who assert their individuality and choose their goals so that they develop their unique potentialities and become personalities. Some of them change the course of history This discussion has led us into the controversial topic of freedom of will revived recently by Skinner in his book, *Beyond Freedom and Dignity*. But we need not pursue the arguments and counter-arguments further, for the problem is unresolved, scientifically. Perhaps, there are rats also who choose their destiny I do not mind mice and men being equal, provided the mice are like men

The main point for elucidation is that education as a process of learning has an ethical character. It has a value-orientation and so the concept of man that lies at the core of this process is a concept of good man, of man as he ought to be. It is not just learning anything, it is learning to be.

In Indian thinking, of which the contemporary expression *par excellence* has been given by Sri Aurobindo, it is a process of becoming. We have seen in Erikson's insightful analysis of Martin Luther and Mahatma Gandhi how the processes of learning, through a series of conflicts and crises, led them on to a stage, where one could say "I have arrived" and others could recognize their becoming great. True, such men, such experiences and such events are rare. But the cases illustrate what becoming means, and it is this process of learning to which education refers. We do not use the word 'knowledge' or 'skill', in this context; we use the word 'wisdom'. Every society values its wise men, because wisdom is born out of experience over a number of years in a variety of situations and, therefore, is available only to those who learn all through life in the pursuit of an ideal. A distinction should be made here between incidental learning which takes place in everybody's life in a random fashion, and the directed learning in pursuit of a goal. Much of this directed learning may take place in the school, but if there is no learning outside the school, through work and participation in the wider life of the society and culture, only the years of life will not produce wisdom, although it may produce the expert or the pundit.

The upshot of the discussion so far is that when we are thinking of the concept of man in education, we are handling complex relationships and concepts. Education is used to indicate many things, and one frequently moves from one meaning to another, making a discourse difficult. It is also clear that when we are considering the concept of man, we are forced to consider several dimensions which bind this concept to values, society, psychology and history. As we proceed in elucidating the concept through successive periods in the history of education, we will find that it is not an easy task and the picture is not very clear, indeed.

Before closing this section, it is useful to clarify the distinction between education and training. Education is sometimes described as training of the mind or training of the intellect. The use of the word 'training' here only highlights the control aspect of learning situations and processes so as to lead the individual to attain an image of man which is cherished by the society and is reflected in the curriculum. Otherwise, the sense of the word 'education' is not different from what has been explained earlier. But the word 'training' as such means something different from education. Training has a narrower focus and is used in the context of specific skill learning. It means a deliberate manipulation of learning situation in such a way that a narrow spectrum of behaviour is acquired by the learner within a given period of time

It is unfortunate that the word is used in the context of preparation of teachers. We really do not even train teachers in the so-called training colleges. But, really, what matters is the education of teachers. Part of any education may be training in specific skills, like writing, manipulating a test-tube, adding, etc. But training is only a part. Similarly, in teacher education, there is and should be some training in specific skills, but teacher education should be much more than just programming a teacher to produce certain kinds of instructional behaviour in the classroom. This is concerned with the making of a man, so that the pupils under the tutelage of such a man may imbibe the image of man which a society cherishes. Training thus emphasizes processes of learning under conditions, which are as carefully controlled as possible, so that only those responses are produced by the trainees, which are right in the sense that the responses are predetermined in their association with the stimuli selected in advance. Programmed instruction highlights this approach. It has, of course, led to the development of an instructional science and educational technology which should help in increasing the effectiveness of classroom instruction. These developments in theory and techniques of instruction show that the line that demarcates the boundary of training from that of instruction is thin. But the distinction nonetheless remains, although the differences might only be in the degree of control over the learning situation by the learner, in the width of the band of behaviours and stimuli and in the variety of processes involved. As a matter of fact, one can look at it the other way round, viz the impact of education on training. Technical education, vocational education, professional education—all of these show that while the focus is on learning of specific knowledge and skills, the learner also acquires certain other kinds of knowledge, skills, attitudes and values which are parts of the 'culture' in which the learner will get into on completion of his technical or vocational or professional education. There is an educational component in a vocational training school or in a technical school, which is not only the substratum on which the training programme builds, but, in addition, is a superstructure built around the skills that are learnt and within which they function. There is inevitably an image of a man in technical or vocational education, although it focuses on training of skills. This image is not just that of a technician or a mechanic; it is there, but it is embedded in a social matrix of roles, relationships and values Similarly, one notices the use of the word 'science education', in recent times, arising out of an awareness that a culture and an image of man is involved in the learning of the sciences. One does not learn only the theories, methods and facts of science, one also learns a way of looking at oneself and the world and a process of learning by which one discovers new knowledge.

In discussing education, it thus appears that we are concerned with various shades of meaning of the word 'education'. It means different things. It is schooling as well as self-learning. Starting at the ground level it partakes of the character of training, but increasingly moves on to higher and higher levels, aspiring for ever towards becoming. It is a process of learning no doubt, but it is not *one* process only. Central to education is a concept of man rooted in the society, culture and history of those persons who are involved in this process.

II

There has been changes in the concept of man through the successive periods of history. Each period has a *zeitgeist* which influences both the concept of man and education. To trace the historical developments in the concept of man in so far as it relates to education, however, is difficult, because the history of education, as we know it, is largely a history of Western education, and more particularly, a history of education in Western Europe, the U.K. and the U.S.A. There is a real need of a world history of education, for otherwise the concept of man in education gives a picture of the Western man in Western education. We know, however, that the cultures of India and China, Iran and Arabia in ancient and medieval history had distinctive features and had developed different views of man and his ideal But our knowledge of their history of education lacks in depth. What is more important, we should know more about the contact, conflict and assimilation of cultures throughout history in order to understand how the concept of man in one culture has been influenced by such events and processes of history and has thereby changed the course of education. There are always forces within a culture as well as outside it which interact and produce changes in social forms and organization underlying which, and also as a result of which, there are changes in the concept of man and in education. To study this dynamics on a world scale is a gigantic task, but it cannot be done properly, unless an attempt is made first to produce a scholarly work of true world history of education. In dealing with the concept of man, one is specially aware of the pitfall of over-emphasizing the cultural specificities, in the absence of a sound knowledge of such a world history, because there are also universals in this concept. Cutting across cultures, there are similarities in social structures, functions and processes which give rise to social experiences which are shared in common, all the world over, and it is out of these shared experiences that commonalities in this concept of man are born. Social sciences and particularly, psychology would not have been possible otherwise. But our concern here is with a historical treatment of the subject of concept of man in education, and it is in this context that we find a lack of information of the specificities of this concept in relation to the distinctive aspects of culture. Hence the need for a world history of education.

Now, how should the subject be treated here ? It can be done countrywise, and for each country the concept of man can be traced historically through the ages. Or, one can do it age by age and discuss the commonalities and specificities in the concept in relation to various countries. Or, it is possible to take any one country, say, India, and show how the concept of man has changed during the course of India's history, and then draw lessons there from about the concept of man in relation to society and education, which can be verified in the context of another country very different from it, say, Germany. It is also possible to group together several countries on the basis of their cultural similarities and form several such groups, and, then, study the concept in each such group over the ages.

There is another way of dealing with the subject. The concept of man can be analysed into its components and the shift of emphasis from one component to another in relation to culture and history may be studied. This approach is preferred because in education there is a continuity of the concept as a whole, although the relative emphasis has shifted from one element to another, as a result of changes in perspective, arising out of historical needs of a society and culture. Such treatment of the subject utilizes a historical perspective to focus on significant shifts in the concept of man in education, and highlights education more than history.

The essence of the concept of man may be seen in Diagram 1. This diagram depicts the two-fold nature of man, being animal as well as spiritual. The animal nature is shown at the bottom and spiritual at the top. This conveys the notion of that which is the base and the top to which one rises. On the left is given the main concerns of education in relation to man's biological, physiological and psychological nature. On the right is shown the social, vocational and cultural nature of man. It is a simplified representation of the main elements of the concept of man in education, the two poles of which are man's animal and spiritual nature. It also shows that man is thought of in the context of social relationships, culture and work, on the one hand, and of his body and mind, on the other. These are not to be considered as isolated factors or elements. Their relationships are quite complicated and cannot be easily shown in a diagram. It may be seen that underlying the concept of man in education is a consideration of good and bad, and education is a movement from bad to good, from the base upwards There is no reverse movement. The distinction between left and right is based only on the habit of reading from left to right, and thereby conveying the impression of what comes first in the time sequence of an individual's life. This time sequence is also implicit in the movement from below upwards, whether in the two columns on two sides or in the centre. The position of animal-spiritual dimension in the centre is deliberate, it indicates the axis and the two poles around which rotates the life of man. There are broadly two dimensions in the concept of man in education : (*i*) the animal nature of man, and (*ii*) the spiritual nature of man. Education has always faced the problem of potential conflict between the two and has tried to subdue the animal nature for the sake of the spiritual. This basic dichotomy in the categorization of the nature of man somehow did not create a dilemma for education. Education stands more or less

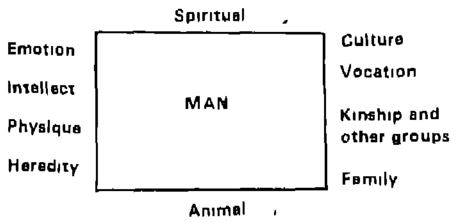

DIAGRAM 1

committed to develop the spiritual side of man The problem for education arises in dealing with the other side of man, the darker side, as it is usually called. In a manner of speaking, it is the perennial conflict of the body and the mind. Should the body be killed so that the mind may flower into the life of the spirit ? The question has been asked and answered, sometimes in the affirmative. So we find in history all kinds of prescription given for the young student to torture his body and cultivate his mind Naturally, it was not for all men, for it goes against nature, against the very goal of biological evolution The logical extreme of this thought is self-immolation. The supreme sacrifice has to be made for the highest elevation of the spirit. We find this in ancient India, in the education that we prescribed for the few who were chosen for the path of salvation and self-realization, in Buddhism, Jainism and Hinduism. We find this also in the Christian asceticism in Europe right up to the middle ages. Although this extreme form has disappeared in modern times, the idea of denial of pleasures persists even in our times in the field of education. In education, mortification has given place to inhibition and denial. So the dualism in the nature of man is reflected in education, and education takes side with the spiritual nature of man. As a matter of fact, education means making a person come nearer and nearer to *dharma*—an *ideal* way of life, and *not* life as it is.

The animal nature of man has two aspects : (*i*) physico-chemical, and (*ii*) biological. It was the biological nature which was recognized before the physico-chemical aspect, which has come only in recent times due to the advances in bio-chemistry. That chemicals play a part in the animal nature of man was vaguely understood in ancient and medieval times The taboo on certain kinds of food and drink indicates that they were aware of the effects of certain substances inside the body But they did not know more than this Blood circulation and blood chemistry came in modern times The effects of glands were understood in chemical terms more recently. However, the point to note is that there is a physico-chemical element in the concept of man as a part of his animal nature, and that this element is taken note of in education. It was emphasized more in ancient and medieval times in a negative way, viz. through the avoidance of certain kinds of food, drink, etc.

The recognition of the biological nature of men took a long time to come. It could not have come before the theory of evolution It is thus a modern element of the concept. There was, however, as in the case of physico-chemical elements, an apprehension of the characteristics of man as a living being which procreates and preserves the race and which grows from foetus in the womb of mother to a baby, an infant, a child, an adolescent, a young person, an adult, an old person who finally "shuffles off his mortal coil". The emphasis was predominantly on the body and procreation, and the concern for education was with physique and heredity. Thus, we find the system of education in Sparta, which influenced so much through Plato and Aristotle, the entire Western world since the days of ancient Greek thinkers. We find this in the Indian systems of education in ancient and medieval times. The society needed physically strong and able persons to produce physically strong and able children as well as to fight enemies and to produce food and goods. So physical culture was an important aspect of education. But there was more to the emphasis on physique *Mens sana in corpore sano*. It was believed that for a sound mind one requires a sound body, and a sound body is given by heredity and exercise. Heredity was also important for education because it was believed that the qualities of mind are also hereditary and so only those should be educated whose heredity shows qualities of mind. In India it was associated with caste, elsewhere with class. It was the aristocracy which could receive education, not the plebians or the slaves. There were Brahmins in every society, but only we had the distinction of having a caste of Brahmins who could aspire for the highest spiritual development. Society did not have one kind of education for all its people The best education was for the best; whether the best were Brahmins as in India, or the feudal lords and aristocrats as in the ancient and medieval European countries and America or Japan, is not important There were lesser qualities and systems of education for the next best and the next in a society. The caste in India had legitimized this distinction. It was the same concept of man, but the emphasis shifted from one level to another, if one can think of levels in Diagram 1. Economic and poitical changes, however, led to a breakdown of the legitimacy of levels. The concept remained, only education was thrown open to all in the growing democracies of the world But varieties in quality and system of education remained and although theoretically one could pursue the best, practically the poor cannot. The opportunities are not equal, except perhaps in the socialist state. This struggle to open up education to everybody does not, however, show itself in the concept, except in an indirect manner, e g in questioning whether spiritual should be at the apex. But this is a contemporary development in the concept of man to which we may come at the end.

The concept of man in education as given in Diagram I can be spelled out in the form of statements about each of the elements in the concept. The statements which follow attempt to describe in a categorical manner the idea contained in each element of the concept of man in education. The categorical nature of statements may appear to be rather extreme. But this is done deliberately to provoke thinking. Also, the author secretly hopes that by forcing himself to write such statements, he makes the idea clear.

1. Man has animal passions and instincts. These drive him to outbursts of violence and disorderliness It is necessary to tame such passions and instincts for individual as well as social good. One of the aims of education is to do this.

2.(*i*) The body of human being gradually matures from infancy until adulthood is attained. But the body needs special care and attention in order to keep it clean, free from disease and healthy. Physical and health education is thus necessary.

(*ii*) The body of man differs from the body of woman. The body of man is good for doing certain kinds of tasks, and the body of woman is good for certain other kinds of tasks. Man should work in the field to produce food and he should be prepared to fight the enemy, when there is an attack on the country. Woman, on the other hand, should raise a family and help her husband in producing food and fighting battles. Hence the body should be trained differently for the two sexes so that they are able to perform their primary tasks better.

(*iii*) Discipline of the mind is necessary for character, personality and spiritual development Body acts as a distractor in this endeavour. So body should be disciplined.

3. Most of man's characteristics are influenced by heredity. Education can only build on what is given by heredity. So only those who have good heredity can benefit from education. Salvation is not for all.

4.(*i*) Some people are born with some talent in specific areas. Education should nurture such talent.

(*ii*) People are more or less the same in the matter of intellectual and other abilities when they are born. But subsequent experiences make them different later on in life. Therefore, education should provide intellectual training for all.

5.(*i*) Intelligence is the most important instrument in a man's life for success and achievement in any sphere. Training of the intellect, therefore, should be the main aim of education.

(*ii*) Discovery of truth is an important human task, whether in individual or social life. This can be achieved only if there is knowledge. So acquisition of knowledge should be a primary task of education and it is through this that the intellect develops insight into reality.

6. Emotions are turbulent. They disturb the peace of mind which is necessary for concentrated work, intellectual or otherwise. Emotions also disturb interpersonal relationships. Emotions are ultimately animal passions and should, therefore, be brought under control One of the primary aims of education is to enable man to sublimate his instincts and control his emotions. Spiritual development also requires an overcoming of emotions. The ideal is a rational being who is not swayed in his judgement or action by any consideration other than reason.

7. Man is born and brought up in a family. He has parents and, most often, siblings. He learns how to behave and relate himself to family members, old and young. He learns this in the family. But education supports this further

8. During the process of socialization, man learns about kinship ties which bind him to other outside his immediately family. He also becomes aware of social groups and institutions in his society as he grows older, and he becomes a member of some groups He learns to conform, to belong, to be like others, to follow, to lead and such other social behaviour. He learns manners, customs, tradition and roles so as to

be a competent member of the society. These are all acquired in the school and out of school. Education fosters this process of socialization and growth in social competence. Education is an ally of the family and society, and hence educational institutions are a necessary part of any society.

9. Any society has to prepare its members for diversified tasks arising out of the basic needs of the people of that society, which have to be satisfied, like food, shelter, cloth, etc. So people must work and they have to be prepared for work. Society arranges for vocational preparation of its members in various ways Education has to be geared to this arrangement.

10.(*i*) Then there is culture. Man makes things, some of which have utility, but others are just creations of imagination. Man likes to express himself through words, lines, colours, sound, taste, touch, movement—all the senses, as a matter of fact. What he does is out of sheer joy of creation. But he also produces goods as a part of his work which he might enjoy doing and in producing goods, he may be creative in the product, or process or in plan. All this is culture of his society in which he participates and which he enhances by his contributions Education fosters this process, and it is one of the aims of education to produce a cultured person.

(*ii*) But culture is also associated with social class. Thus, the culture of the lower classes is considered to be inferior to the culture of the upper classes. The culture of the foreigner may be considered superior or inferior. Man learns the culture of his class, and if his class is lower, he may like to learn the culture of the upper classes. If the culture of the upper class is an imitation of foreign rulers, he may like to learn the culture of the foreigners. Education is one means of improving one's culture. But the school is linked with social class.

(*iii*) The ethos of a culture is reflected in the value-system of that culture. The ideas and ideals which traditionally inspire the persons of a culture are learnt by the members of that culture as a part of the process of socialization. Education plays an important part in this When education does not do this, education creates alienation by becoming an island of culture surrounded by the ocean of the main culture of the society.

11.(*i*) Finally, man, in the ultimate analysis, is a spiritual being He for ever aspires to become a free spirit, one with the universe. Even the body is a burden.

(*ii*) There are levels of existence and consciousness from the amoeba to man. But man tries to overcome the boundaries of his consciousness through special efforts.

(*iii*) Anything that man does to go beyond himself and the material world is spiritual in nature. Man is born selfish, but he learns to be unselfish. He is born hungry and may remain hungry, but he does not wish to Bread is not his only concern as soon as he gets his bread, he fixes his sight on non-material life.

(*iv*) Education should aim at all these.

The statements of the concept of man in education show that whatever man's nature may be, man's life is a part of a network of relationships, and his growth and development, as an individual, depends very much on what these relationships are. From the point of view of education, his relationship with three entities are specially important. These are his relations with society, state and religion. Historically, the shifts in emphasis from one set of elements of the concept of man in education to a different set has been largely due to the way the relation of man to society, to state and to religion has changed Whether the concept changed first and led to changes in the relationship, or the relationships changed first and this led to changes in the concept, is a difficult question to answer. Perhaps, both changed concomitantly as a result of historical processes, or they might have influenced each other all the time. This aspect of the concept of man is visualized in Diagram 2.

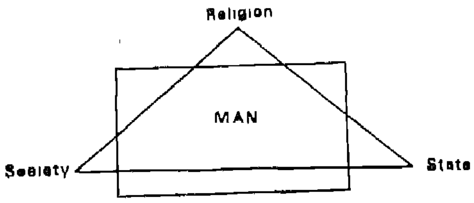

DIAGRAM 2

The three forces of society, state and religion impinge upon man and so the triangle is superimposed on the rectangle representing man. The three forces act on man simultaneously, but not always in a concerted manner. Sometimes they are in conflict among themselves, creating pushes and pulls in man. All the three attract man, but man sometimes repels one of the other force, at least he tries to. Education is very much influenced by the interplay of these forces vis-a-vis man.

Historically, we know how Plato's ideas of the Republic governed the concept of man in education in Greece. Sophists were more concerned with citizenship as against Plato's concern with the state. The conflict between the society and the state had its beginnings in those ancient times. Socrates upheld the value of critical thinking against unthinking acceptance of authority, and, by laying down his life under the circumstances that he did, he vindicated the value of individual's freedom of thought. During the time of inquisition, Galileo through his suffering upheld the same honour. Time and again, in history, this has happened. The issue of freedom of the individual has been, ever since, the central issue in the concept of man in education. The right and freedom to pursue truth regardless of any other consideration is considered to be the noblest aim of all education. When the university was first established in Western Europe, it arose out of this need of a group of individuals who found that a community of such scholars, who dare to think and think freely in the pursuit of truth, was necessary to offset the forces impinging from religion and the state, both demanding a surrender of this right, for the sake of discipline and conformity. Traditionally, the university has enjoyed this freedom from interference and control by the church and the state, until recent times. In the medieval ages whether in Europe or in India, the church controlled education The concept of man was moulded by religion, and surrender to authority was regarded as the supreme value. Things changed with the rise of science, with the discovery of printing press and of gunpowder, and with the rise of a commercial class. The old feudal order was challenged by a rising middle class.

All this changed the concept of man and education. The issue of freedom vs. control, by the church or the state, became sharper, and social control of education became more important than control by the feudal lords, or the priests, or an oligarchy, or the aristocratic class. The questions—Who shall be educated and how shall be educated—were answered differently. Public schools appeared on the scene. As initiative and enterprise as well as reasoning became valued, the rigidity of curriculum was questioned How man should learn, became an issue.

This is another aspect of the concept of man in education. The process of learning was not considered so important as what was learnt. Pupil learnt from authority, from his lecture and discourse. The pupils were encouraged not only to memorize the lessons given by the teacher (there being no printed books, it was necessary), they were asked to imitate his expression. Oratory and rhetorics were the hallmark of Roman education. The holy books and the few ancient scholarly works and epics were the only sources of knowledge In India, *shruti* and *smriti* were the important processes of learning the *shastras* from the *guru*. Experience was nowhere in this picture of bookish knowledge. It is against this background that the method of science appeared on the scene, which emphasized observation, reasoning and discovery of new truths. Naturally, it was heresy and people had to be burnt to death But the concept of man changed For the first time, a new element entered inside the box in Diagram 1, viz. learning from experience, and this opened up a new vista of epistemology or the science of knowing How man learns became a central feature of the concept of man. Starting from simple ideas of association, we have known since the British empiricists, a great [deal about how man learns It is a big change from memorizing the words, spoken or written, in a pre-arranged fashion and controlled by a preceptor, to self-learning, from one's experiences, by one's own efforts, through various activities, at one's own time. Freedom to learn on one's own in one's own way is now centre to the concept of man. But it has taken a long time and had to pass through fire, as all freedom, worthy of earning, has to pass.

The discussion so far indicates the complexity of the concept of man in education. If one can understand the concept fully, one would understand man as he appears in nature, society, culture and history. The aim of this essay, however, is far from this goal. It will be presumptuous on my part to believe that I have fully understood it myself. But, if some clarity has been achieved in perspective, a a beginning has been made. We can now move on to a discussion of the periodic changes in the elements of the concept by way of emphasis and what these changes meant for man and education.

III

Let us start with the Indian case The earliest concept of man was that of a spiritual being, *amritasya putra.* The Vedas and the Upanishads glorified this concept through the ideas of immortality of the soul, transmigration, eternal life expressing itself in manifold forms. The goal of an individual is to realize his identity with the absolute and attain blissful existence transcending time and space. That man is capable of attaining this state of self-realization was a postulate, and education was a process by which man should be directed towards this goal. But, as agriculture developed and there was wealth, a social differentiation seemed to have taken place in order to meet the needs of variety of tasks that had to be performed so as to maintain the level of living and guard the wealth against enemies. And so we find that in the post-Upanishadic period, the concept of man was somewhat modified. The idea of social forms, of one's station in life, and of duty for duty's sake became important. Self-realization was interpreted anew ; it could be attained through desireless devotion to duty. One should not expect anything in return for doing one's duty. It was not for the individual to decide his duty. Caste decided it. One could transcend caste only by doing his duty well so that in the next life he may either not be born again, or be born in a higher caste. Education, therefore, varied according to caste and the goal in each case was to teach the individual his duty, social forms and the attitude of non-expectation of reward. The arrival of middle Eastern culture in India did not make much of a difference to this concept On the contrary, the feudal aristocracy found this to be to their advantage and through the priests, noblemen, the warriors and the landlords this concept of man was generalized Man was not for himself , man was for Him. One who serves others, serve Him.

With more particular reference to the elements in the concept of man, we find that hereditary privileges and duties were important : body was subservient to the spirit and although one should not neglect the body, one should not over-value it. It should be prepared to be the abode of God and one should not hesitate to sacrifice it for Him. One can see here, how it helped the cause of religious war. Associated with the body and the emotions were animal passions which must be subdued. The intellect should be developed only by those who were destined to be intellectual. For the rest, vocational preparation was more important, and one should learn to do the tasks required in the vocation to which one belonged, either by caste, heredity, or family. Birth was the decisive factor. There were exceptions because, with increasing trade, and commerce, a middle class had grown. Enterprise, adventure, initiative and such other non-conformist qualities in some individuals brought name, fame, wealth and powers to them. The children in their family, however, followed the vocation of the family. Learning of custom and tradition in keeping with the culture of one's community was important And, of course, one had to be religious in order to reach the highest value, and religion for most people meant rituals and *mantra*, suffering and sacrifice, prayer and meditation.

This picture of the developments in the concept of man in India, from the ancient times to the middle ages, is more or less the picture of man elsewhere during these periods of history. The culture-specific characteristics of the Indian concept of man were, of course, not to be found elsewhere But, in essence, the ideas were similar. The Apollonian culture of Greece, in ancient times, produced a shift in emphasis The body of man, its strength, vitality, rhythm and beauty, was noticed for the first time in Greece. Cultivation of the physique was considered good Beauty, in all its forms, in the life of man became an ideal The senses were not regarded as perverse, leading man to evil But the senses required training through art, music, sculpture, architecture, etc The creative nature of man was recognized. On the one hand, physical culture, sports, gymnastics and games led to the building of the body so that it was not only strong and healthy, but also graceful and beautiful On the other hand, the arts trained and developed the senses, and through aesthetic creation gave joy to those who create, as well as to those who appreciate such creation. This Hellenic influence on the concept of man permeated later developments in educacation in the West. The cultivation of the body, aesthetic sensibilities and creative arts became acceptable in education.

In the middle ages, however, the church reigned supreme and the attitude to body and beauty changed again. The idea of sin tainted the concept of man Mortification of the flesh became a virtue. Beauty was no longer in the body of man, but in the image of God.

Spiritual life based on duty and sacrifice was considered the good life. The senses were regarded as instruments of pleasure and, therefore, evil; they should be controlled rigorously and subordinated to faith.

Thus, right up to the middle ages the concept of man remained more or less the same, with one exceptional shift in emphasis, viz on the body, sense and the beautiful in Hellenic culture. In most other cultures, the body represented the evil in man and had to be ultimately sacrificed for the sake of the spirit. Man is himself only when he has made the supreme sacrifice Much of education during these times consisted of learning and developing an attitude of surrender. Man becomes hero and immortal, when he lays down his life for a noble cause, and the noble cause was more often than not the kingdom of God, which in practice, meant the kingdom of the lord Education, under the circumstances, had to be religious.

A big change in the concept of man came from the rise of modern science. Physics posed the biggest challenge; for, with Galileo, a new method of discovering the truth came into existence. Reason became more important than faith. As a matter of fact, it challenged authority. Actual experience got a status, which it never had. Science is based on observation and logic. But apart from physics and astronomy, Galileo, Kepler and Copernicus, other sciences developed and discovered truths more directly concerned with the nature of man. Physiology, zoology, botany, biology, psychology, economics, sociology came in rapid succession to throw light on the various aspects of man's nature and his life. Soon, heredity was no longer a mistery , the study of anatomy and physiology of the body did not discover dirt and evil ; man was seen in the context of evolution as having a disconcertingly lowly origin ; his mind was found to be law-governed as much as anything in nature was , even his dreams could be understood in rather mundane terms; and, above all, one could understand how wealth (and poverty) was caused by man and not given by destiny These were big changes.

So as a result of scientific discoveries we got different views of man : biological man, psychological man, economic man. We had earlier the political man, the cultured man and the spiritual man. All these views portray different aspects of the nature of man and his relationship with society, state and religion. The modern concept of man, thus, became much more complex than the concept in ancient and medieval times.

Along with science, there came a rapid development of technology. Industrial revolution shook the foundations of the old social order. New social classes became powerful Church could no longer keep its control over men. With middle class and lower class increasing in size, with the expansions of trade, commerce and industry, it was but natural that there will be demands for sharing of political power. Political democracy, thus, came into existence. Instead of the conflict between the church and the state, it was between the state and society or the people. Education was influenced a great deal by this Secular education rather than religious was of great concern. The demand of equality in the matter of votes in political democracy was reflected in the educational demand for schools to equalize opportunities of education. Whether education should lead man to revolt against coercion of blind authority and exploitation of the many by a few, or it should lead man to an acceptance of the social, economic and political order became an issue in education. For man was pulled in both directions. There were social groups which wanted one alternative, as much as other groups wanted the other. Political parties developed through such conflicts of interests. While their were these value conflicts, social and political conflicts, man found himself beset with internal mental conflicts for, as Jung said, man had lost his soul and so the modern man had to be in search of it. The question was· Should secular education develop a conscience which will increase such internal conflicts or should education be a moral and let each individual solve his problems in his own way ? The dilemma is still valid.

The new light that was shed by the sciences on the nature of matter, life, mind and society stimulated the development of philosophical thought in new directions. The British empiricists laid emphasis on learning from experience. Sense-data were the only data on which reason builds the structures of knowledge and helps man decide on the best course of action When a baby is born, it has no store of memory and, therefore, nothing to build on. It perceives the world, its body and other persons around it through its senses. These perceptions leave traces behind them in memory. From these traces are formed ideas. It can then think and imagine. From repeated observations, man finds patterns of events. Whenever X happens, Y happens. This experience gives the notion of causality. Association of ideas is the main process of learning and knowing.

When it comes to action, the utilitarians said that man chooses that line of action which will give him maximum utility. The notion of utility was related in the last analysis with pleasure. Man seeks pleasure and avoids pain, this was the principle of motivation. Any course of action wich was in line with this principle was useful Man learns from experience what is useful and what is not. Man at the core was thus, a selfish being. It was but natural in economics to think that, given a chance, man will try to maximize his gain or profits But if man learns all this from experience, surely he gets it from others in society. Thus, man is born clean, but becomes unclean from his interaction with society. Rousseau idealized this pure nature of man. One can see here explanation of sinfulness of man in terms of the real world as against the mythical explanation of religion. Education was influenced by this in many ways. It became important to learn the scientific method, to train the senses for accurate observation, to train the intellect for drawing right conclusions and testing new propositions. Authority was not sacrosanct; it was useful to the extent it helped man in maximizing his gain. The task of education was to make man critical society. for it was society which spoiled man. From this, it was but one step to individualism as the goal, which appeared clearly on the American scene Humanism of the Renaissance period became scientific humanism. One of the greatest educational thinkers, Dewey, was also one of the stalwarts of the philosophy of pragmatism.

The impact of Darwin, Freud and Marx led to significant shifts in the concept of man. Man's animal nature no longer meant only his turbulent passions of violence, rage and sex. Biologically, he shared many characteristics of the living organism His anatomy, nervous system, brain, glands, blood circulation, respiratory system, procreative apparatus and so on showed similarities on an evolutionary scale with other animals The notion of adaptation was important. But natural selection, through survival of the fittest in the theory of evolution, created problems The idea of superiority somehow got involved with the fittest Racial superiority was but one step ahead. Not only was man superior to animal, but among men, some men were superior to others. On the one hand, the theory of evolution served the arrogance of some men, on the other, however, it led to the development of an attitude of acceptance of the impulses, instincts and emotions of man as natural.

Freud laid bare the complexities of the emotional life of man. He showed how man was governed by his primitive impulses, but was always guarding against their natural expression and sublimating their energies in intellectual and creative work. Particularly, by bringing in the open the sexuality of man as well as his aggressiveness, Freud took away the coloured glasses through which man for centuries had looked at himself. By explaining the psychopathology of human behaviour, neurosis and psychosis which affected man, he took away the last resort of the demons and the spirits. They had already lost their seat in the body and now they lost their habitat in the mind. Education was deeply influenced by psycho-analytical thinking. The importance of play, of creative work, of personal relationship was as much essential to education as intellectual work and effort. There were many other effects. But the interesting thing for us to note here is that Freud also helped individualism. Man's troubles are ultimately rooted in his inability to find himself and accept being an individual. Motivationally, man was selfish and sought pleasure. In this, Freud was close to the British philosophers of the empirical school; pleasure was concieved biologically as reduction of tension, the paradigm of which was found in the sexual act of man To this, however, there was strong opposition, particularly in education. It does violence to the essential spiritual nature of man But Freud's insistence on sex, led to the serious debate over sex education, which continues even today. To teach about the body is sin enough, how can we teach sex.

Marx shook the world, literally, when he announced that the workers had nothing to lose but their chains The traditional attitude of acceptance of one's position in life was questioned and transformed. The searchlight of systematic observation and reason unearthed the mechanisms of exploitation of man by man. A new concept of social relationship was born. Philosophically, he was in the tradition of empiricists and upheld the primacy of experience over faith. So, in socialist education, experience is important But experience in a haphazard manner has never been considered educative. The empiricists, the pragmatists, the realists as well as the materialists believe in planned experience, because it is through correct associations that correct ideas are formed, and science always plans experience. The difference among the various schools of thought lies in the purpose for which planning is done. Whereas in individualism, the purpose is to help the individual to develop his potentialities, in socialism it is to see that the individual develops, through shared experience, the correct perspective from the point of view of social good. Individualism challenges all the three forces of religion, society and state so that he can himself shape his destiny in the manner best suited to him and become an individual Socialism challenges religion and only particular forms of state and society, so that individuals, collectively, can shape their society and state in a manner which, on the average, will satisfy all individuals.

The author is aware of the fact that he has covered a long and interesting history of man in a rather sketchy manner. It has done injustice to many ideas and thinkers. But a broad sweep was necessary to maintain the constraints of time and space Besides, for the subject under discussion here, it is enough to indicate that the big change in the concept of man came with the rise of science, of capitalism and socialism. The changes shook the foundations of many beliefs about man's animal nature, heredity, body, intellect, emotion, family, society, culture, vocation, and spiritual nature, in short, about all the elements of the concept as given in Diagrams 1 and 2. With increasing knowledge, the boundaries of men have receded further, and all the elements are found to be in a complex international network. Man is a system and not a set of random variables. He is, perhaps, not even one system, but a field of overlapping systems.

What are we left within the concept of man today so far as education is concerned ? It is of interest to note that the concept underlying education in modern India, as exemplified in the approach of Tagore, Gandhi, Vivekananda and Aurobindo, is that of an ethical spiritual being, who begins as an individual with an acute awareness of his limits, constraints and suffering, but tries constantly to expand the area of his awareness and rises to a height from where limits are distant and happiness is near. Not only did industrial revolution bypass India, the impact of science and technology also was not felt British empiricism did not take roots, but clerical education did and clerks, as we know from history, were educated in order to serve the monasteries in the West—in today's parlance, the monsters.

However, what happened in the West is interesting. Education changed in methods and in some of its aims Froebel, Pestalozzi, Montessori and Dewey gave new types of schools, brought in new process of learning, and made play, activities and sense-training respectable Curricula became diversified to suit individual needs and aptitudes. Individual's growth and development became the main aim of education. The ideal was what the individual could *learn to be*, as the Unesco document captions it. Man is born free, he should grow up in freedom and remain free. Education, therefore, has to provide learning experiences of such content and nature that he does not lose his freedom *to be what he wants to be.* What he *can* be, may be different from what he *wants* to be, but it is not for education to restrict him from trying to be what he cannot be. Like success, failure also is his responsibility The growth of individual lies in taking responsibility for himself. If he wants to learn outside the school, he should have the opportunity to do so and it is the duty of society and the state to provide the resources for the same Life-long learning is the goal, for the search of man to find to himself continues throughout one's life Education is moving in this direction.

In the end, one can see that the concept of man has been shaped by various forces, economic, social and political But the most important changes have come from new knowledge about man, society and state. Education passes on old knowledge to young minds, it is true, but it also, in that process, kindles sparks in some minds, here and there, which later produce new knowledge which changes education itself It is this contribution of education to change the ideas about nature, life, man and society which makes one think of education as an instrument of change. The task of education today, in one sense, is to prepare men and women who will not be afraid of change, or of bringing about change. This concept of man today is very different indeed from all the earlier notions It is possible to think of this, because education is not the same thing as schooling; it is learning, in the wider sense of the word. The challenge today is to devise a learning system with the help of the state which will encourage individuals not to just to be, but, something more, to become, to change. Adaptation to a fast changing world requires this.

IV

This is the concluding section Here we shall attempt to present the concept of man in education in the form of summary statements. These statements represent current thinking about man, and, in comparison with the statements made earlier in this article, will show the shift in the concept as a result of the developments in scientific knowledge and in society, economy and history.

1 Genes are the carriers of heredity. The process by which genes combine to produce certain characteristics is more or less known. Genetic control is a distinct possibility.

2. The process of learning has been

known sufficiently to enable us to programme the development of an individual with a given genetic organization

3. Education is nothing but programming an individual's development and learning.

4. The question is : Who will do the genetic control and who will do the programming ? The state ? The family ? The community ?

There is no answer. But whoever does it, the possibilities are frightening.

5 It is now known that the presence of certain kinds of chemicals in the blood stream help the individuals to be not only healthy in body, but also in mind. The brain develops the capacities for intellectual work, creative work and proper psycho-motor coordination for the senses and the muscles to operate efficiently.

6. Some of these chemicals are not available to large masses of people in many societies because of poverty Education for them does not produce the same results as for those who are not poor.

7. It is possible to produce more wealth and to distribute it more equitably so that these chemical deficiencies can be overcome. Only then the opportunities for developing maximally through education will be equal.

8 Removal of poverty requires, among other things, a consistent rise in productivity. Education can be so designed that it makes men productive. Such education obviously requires a big change in the structure, function and organization of school. The boundary between school and community will have to be fluid and the distinction between formal and non-formal education less and less sharp. Instead of teaching revolution, the processes of teaching and learning have to be revolutionalized.

9. The question is : Can this be done ? Who will do this ? Obviously, the state can do this, provided it controls all the other resources of teaching and learning in the community But when it does not have this control it is the people in the society, who will have to do this. This means the people will have to be educated to do this. It will take time By that time, poverty will have increased. So we are left with the other possibility, viz. a state take-over of all resources.

10. Sexuality is neither good nor bad. Man shares this characteristic with many other species Marriage is not necessary for mating. With the knowledge of contraception, it is possible to have mating without child birth Women, therefore, can be made free from marriage, childbirth and family. Then, women can participate in productive work and increase the total quantity of production Simultaneously, the rate of growth of population will slow down, and so there will be an increase in per capita wealth. Sexuality, liberation of women and removal of poverty are, thus, interlinked.

11. This gives another direction to education Through both formal and non-formal education, knowledge has to be given, attitude has to be shaped and new values will have to be learnt. There will be great resistance to this, because it cuts at the roots of our tradition in sex, marriage, childbirth and family with which morals are associated. It is a process of amoralization of some important aspects of human life which has been traditionally considered sacrosanct

12. The question is . Can this be done without a revolution ? Who will do this ? The state ? Then the state will have to control all resources of formal and non-formal education.

13. The developments in science and technology have been spectacular in recent

times. Unfortunately, the knowledge has been used to fight wars. The march of progress in science and technology cannot be stopped. But can we stop the use of this knowledge for destruction ? If we cannot, there is a real danger of mankind being wiped out of existence from this planet While all possible methods of control should be developed so that nations may not fight wars, it is necessary to educate persons for peace. Peace, amity and goodwill on earth is not a matter of religion any more, it is a real need of the hour.

14 The question is : It is the state which has used education to fight wars, can the state be expected to control education for peace ? If not, what is the alternative ? How can there be education for international understanding and peace ? What kind of education should it be ? Should it not be an ethical education for non-violence ? But if the rest of education is a moral, can this be done ? Will it not be disintegrative education ?

15. The rate at which population is growing in the world and the rate at which the earth's resources are being depleted in order to meet the rapid increase in the need to consume more and more, it appears that a cataclysm is ahead of us as a result of which there may be complete breakdown and even the collapse of human civilization. This is the doomsday hypothesis of the future of man. In order to check this trend, it is necessary to reduce consumption as well as rate of population growth. But how to check the rate of consumption, having developed an economy based on consumerism ? The economy has to change. But can education do anything in this matter ? Can education give this knowledge to men and influence their attitudes and value-orientation to such an extent that people will voluntarily cut down consumption ? Can education do this when there is no basic change in the economic structure, function and organization ? It cannot, because the forces which control the economy, also control education.

16. Enough has not yet been known of the human brain, and particularly man's powers of ingenuity and creativity. Biological adaptation requires the use of intelligence and such other powers of the mind like creativity. Man will use these powers in order to survive against the predicted doomsday. In order that man can achieve this, education has to be for creativity. It should be integrative education in order that man can attain new heights of awareness, and only then can he produce thoughts and discoveries which will be adaptive. But this is difficult, because it is education for the unknown, whereas education is an instrument for the known.

This is the concept of man in education. The picture is not clear, but that is how it appears to the author. The present confusion in education arises out of the dilemmas and contradictions noted above. Let us hope that man will emerge out of this unscathed.

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The District Education Officer

A Neglected Resource for Guidance

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THE DISTRICT Education Officer (DEO), who represents the middle level of educational administration in our country, has so far played hardly any role in the development of guidance services. This is a cause for concern, particularly because the resources available for developing guidance services are so meagre and the need for guidance so great.

Perceptions of the District Education Officer's Role

One reason seems to be the rather negative perception of the District Education Officer's importance by those higher up on the ladder of educational administration, as well as by State Bureaus and other agencies working in the field of guidance The perception seems to be that the DEO neither plans nor implements educational schemes; the planning is done at a higher level, and the implementation is done in the schools. Consequently, neither the Directorates of Education, nor the State Bureaus of Guidance, have made any attempt to utilize the services of the DEO in the planning and implementation of guidance services The State Bureaus have, to some extent, been conscious of the importance of the school principals in providing guidance services, and have occasionally organized orientation programmes for them. There are hardly any instances, however, of State Bureaus of guidance organizing orientation programmes.

Unfortunately most DEOS are themselves quite unaware of the role which they can play in providing guidance services. The situation is made worse by the fact that many of the DEOS, being senior persons in their cadre, have had their professional education many years ago, at a time when guidance hardly figured in the curriculum of secondary training colleges. Not having been exposed to guidance either in the course of their pre-service training or later through refresher training or orientation programmes, it is but natural that many DEOS are not aware of the need and scope of guidance, the nature of various types of guidance programmes, the resources available for guidance, etc. No wonder the DEOS have not yet been able to percieve that they have any role to play in providing guidance services, and consequently have not made any contribution in that direction.

We in the Department of Educational Psychology and Foundations of Education (DEPFE) of the NCERT, have a different perception of the role of DEO We think that he can and should play a significant role in the planning and implementation of education schemes, including guidance. We feel that an important resource for the development of guidance can be mobilized if we provide orientation to the DEO, so as to enhance his understanding about guidance, and to help him understand the positive role which he can play in the development of guidance services. This will facilitate a change in his occupational self-concept; thereby motivating him to make a positive contribution

Methods for Orientation

Mailing of relevant literature to the DEO is one method of orientation. This is obviously the least expensive one. We feel, however, that it is not likely to have any impact because DEOS are unaware of the relevance of such literature to their work, and have no motivation to study it, all the more so when they are engrossed in their usual duties.

A successful orientation programme will have to draw the DEO away from his routine duties so that he has the time and the frame of mind to absorb new ideas The programme should also hold his interest by offering live presentations about the subject, and opportunities for a good deal of discussion through which he can obtain further information, clarify his doubts and misconceptions, and chalk out realistic plans for action, keeping in mind the constraints of the required resources

NCERT's Attempts at Orientation

The DEPFE has, therefore, offered a few orientation programmes in guidance for DEOs of three to four days' duration. These programmes involved participants from either a particular state, or from several states in a region, or from states from all over the country.

An Overview of a Recent Orientation Programme

During 1977 the DEPFE offered two orientation programmes in Guidance and Learning, one of seven days' duration, the other of nine Half the time in each programme was devoted to guidance. Nineteen DEOS from various parts of the country participated in the first of these programmes and 28 DEOS mainly from the southern zone, participated in the second. The topics pertaining to Guidance presented and discussed in this programme were :

Introduction to guidance—guidance as an integral part of education : overall goals, need for guidance; basic principles.

Common problems of adjustment among students

Problems of adjustment of disadvantaged groups with special reference to girls, socio-

economically disadvantaged, and tribal students
Specific goals and nature of the school guidance programme—elementary classes.
Specific goals and nature of the school guidance programme—high and higher secondary classes.
Organizational climate
Resources for Guidance—personnel resources functions, training, etc.
Resources for guidance—other resources, including material resources
The role of the District Education Officer in providing guidance services organization at the district level, including training, inspection and evaluation and administrative problems.

It was found that the participants attended the programme regularly and evinced a moderate degree of interest. As is usual in extension programmes, some of the participants were highly vocal during the discussions, others moderately so, while some hardly spoke. We tried to gauge the success of our efforts on the basis of the observations of the programme faculty themselves, as well as through an evaluation questionnaire which was filled up anonymously by the participants. The overall impression that we have gathered is that the programme succeeded in providing the orientation it had set out to provide, that it enhanced the DEOS' information and understanding about guidance, and helped them to clarify their own role in providing guidance services.

Clarification of the DEO's *Role in Guidance*

Clarification of the DEO's role emerged gradually through discussion. While none of the participants agreed on each and every point with his colleagues, and a few had serious reservations on many points, nevertheless there was sufficient consensus of opinion among the participants regarding their perception of guidance and the role which they could play in providing it

All the DEOS agreed that it was essential to have the guidance approach permeate all aspects of educational activities, and that it was equally essential to provide organized guidance services through specialized personnel, viz. counsellors and careers teachers. The needs and problems of rural students, and those of students disadvantaged in any respect, should receive special attention.

As regards their own role, those aspects of it on which there was sufficient agreement among the DEOS are described below These can be conveniently grouped under four heads : Planning and related administrative action, coordination, training, and evaluation.

Planning and Related Administrative Action

The first of the DEO's functions in connection with guidance services is planning and related administrative action. He can survey the need for guidance services in the schools in his district, assess the resources of the personnel, money, materials, etc. which are required and those which are already available, and move, in fact, urge the Directorate of Education and the State Bureau of Guidance to provide the required resources. Since paucity of financial resources has been a hindrance to the development of guidance services,, the DEO can explore with the Directorate of Education the possibility of financing guidance through levying a very small fee as is done for library, sports, medical inspection, etc. If the DEO can help the higher officers to recognize the need and importance of guidance, they would be more inclined to finance guidance services both by way of direct budget provision and a small fee. The boys' fund could also be utilized for certain guidance activities such as field trips to places of work careers conferences, displays, and showing of films about occupations.

Another difficulty in the way of providing guidance services pertains to the time element. For instance, principals often do not relieve careers masters of their normal teaching load to the extent that they are supposed to. Nor do they relieve them even for short periods to undergo orientation or training Often there is no provision in the pupil's time-table for guidance activities on a regular weekly basis. In all these matters the DEO has a good deal of say and can improve the situation

Coordination

Mobilization of the total resources of the state and the community is required if we are to provide guidance services, particularly when the financial contribution from the government is so meagre. Here the DEO can play a key role. He can function actively as a link between the Directorate of Education and the schools, between the State Bureau of Guidance and the schools, between the training colleges and university departments of education and psychology in his district and the schools, etc. and mobilize their resources, including training resources, material resources, and even providing direct guidance services to pupils and parents For instance, he can see to it that guidance materials, such as occupational information literature and other aids, tests, etc. are obtained from the State Bureau and made available to guidance workers in good time.

Vocational guidance is a shared responsibility of the education and the employment authorities. For purposes of coordinating the activities of these two authorities, there is a coordination committee at the national level and also at the state level in many of the states There should also be an actively working District Coordination Committee for Vocational Guidance in every district Such committees have already been set up in several districts by the employment authorities, but where they do not exist, the DEO can take the initiative in setting them up. The DEO should not only be the chairman of the committee, alternating with the District Employment Officer, but he should see to it that the committee is really active, and he should play an active role in the implementation of its recommendations

There are other agencies in the community which can be of help in the total guidance effort, e.g. Rotary Club, Lions Club and similar organizations, state or districts branches of professional organizations, various industries and other employers, and health services. However, someone has to get these organizations interested and involved in the guidance efforts, and coordinate resources and programmes. Here again the DEO can play an important role. The District Coordination Committee mentioned above is a channel for this, but direct contacting of these various organizations is also required.

Training

As mentioned earlier, the DEOs recognized that especially trained guidance personnel as well as guidance-oriented principals and teachers are needed for providing guidance services. While the training of counsellors is a state and central level function, and a few universities are also moving in that direction, the DEO's role in this regard is to encourage schools to depute staff for this training, and to take such administrative action as will facilitate the schools in doing so He can also organize short refresher training for the counsellors in his district, or depute the counsellors when the State Bureau organizes such training. Deputing counsellors to conferences organized by state and national guidance associations is another way in which he can be helpful

Careers teachers training, which should be of at least a month's duration, can be organized more economically at the district level than at the state level, provided 30 to 40 teachers from a district undergo this training at a time. The DEO can organize such courses for his district, drawing upon the education budget for his district, since the financial resources available with the State Bureau are often very inadequate. He can utilize the syllabus drawn up by the State Bureau, and draw upon the expertise of the State Bureau, the State Employment Service's vocational guidance officers, the training college faculty and various other community resources mentioned earlier. He can also organize refresher training for careers teachers.

Orientation programmes in guidance for principals and teachers are best organized within each district rather than at the state level. Here again the DEO can take the lead, drawing upon the resources of the State Bureau and other agencies. The education budget for the district has provision for organizing short programmes for principals and teachers. Such programmes are necessary for enlisting the support and active participation of principals and teachers, without which even a minimal guidance service cannot be provided to pupils.

We cannot for ever try to cope with a mounting backlog of teachers who are completely untrained in guidance by organizing special in-service programmes for them. The answer to the problem lies in introducing guidance as a substantial core component in programmes of preservice teacher education at all levels, including primary teacher education

The DEO can help to bring about this change in the preservice teacher education by effectively communicating his views about the necessity of doing so, to those responsible for drawing up syllabi. If a number of DEOs move their Director of Education to press for this reform, it is likely that the syllabi will be revised.

Evaluation

It is but natural that schools will attach more importance to those aspects to which the DEO attaches importance during his inspection So far the DEO has not inspected the guidance aspect of schools. He should evaluate the guidance programme when he evaluates other aspects of the school, although evaluation of the guidance programme is also the responsibility of the State Bureau of Guidance. He will need criteria by which to evaluate The criteria are not available today. The NCERT will shortly evolve guidelines for evaluation in consultation with the State Bureaus. The specific criteria for each state can then be laid down by the State Bureau. Some of the criteria can be objective, e.g. the existence of an occupational information corner, the nature and extent of the materials available in it; how up-to-date and suitable the materials are; the extent to which the material are utilized; the availability of a room or corner where counselling interviews can be conducted in privacy; whether testing has been done; how cumulative record-cards are filled in and used; whether the time-table provided regularly scheduled time for guidance activities; what group guidance programmes have been carried out; how many students have received individual counselling, what are the qualifications of the guidance personnel.

Valuable information for purposes of programme evaluation can also be obtained by having free and frank discussions with the pupils, parents, teachers, and principals. It is most important to talk to the guidance personnel themselves, have them tell about their difficulties, achievements and plans.

More elaborate evaluation studies may be difficult for the DEO to undertake. He can, however, request training colleges in his district to undertake such studies. In addition to the specific guidance services the DEO can also attempt to evaluate the extent to which the school as a whole is guidance-oriented, whether the kind of 'climate' that prevails in the school is conducive to good teaching and learning, to the healthy emotional development of the pupils, and to job satisfaction among the teachers.

Conclusion

As a result of the orientation programme in which they participated, the DEOS developed a better understanding about guidance, and come to see the significant and many-faceted role they could play in providing guidance services despite the existence of all kinds of limiting conditions. It remains to be seen what they will do in actual practice. Only a follow-up study will give the answer

It should be mentioned here, however, that many of them expressed the need for having a District Counsellor attached to their office who could help them with some of the work mentioned above, in addition to undertaking responsibility for actual teaching in orientation and training programmes, serving as secretary of the district coordination committee, organizing group guidance programmes, and providing individual guidance to pupils referred to him by schools. □

Objective-based Testing

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What is a Question ?

A QUESTION plays a very important role in the teaching-learning process. It is not only a powerful tool of testing the multifacet achievement of the pupils, as is generally understood, but what is often overlooked is its potential role as an effective device of teaching and as an instrument for promoting the pace and depth of learning. Some of its other roles are the diagnosis of pupil's difficulties, academic prediction of their potential and the speed of their power of assimilation, etc. A set of questions (a test) is also used as a device or a procedure for determining the truth, the falsity, meaning or value of a hypothesis. It is the smallest unit of a test. If it reflects the same objectives that guide instruction it can play a more positive role in the educational process as objectives and test items but have reciprocal relationship to one another A good question framed after a considerable thinking can conveniently be used to develop among pupils the ability to analyse, integrate, interpret and evaluate a given data It can also be given to students in the form of a project to reinforce certain concepts and develop among them the ability to solve problems. In science subjects such problems may be posed by using thoughtful questions in a way that they demand pupil's proficiency in analysing problems, formulating hypothesis, making observations and recording and interpreting the data. In social sciences it can be used to accelerate the pupils to reasoning, arguing, thinking critically, and expression.

The Instructional Objectives

The goals of social studies are quite broad and general. It is felt that study in this area should lead the student to an understanding of the social systems and structures in which he lives and prepare him for effective participation in their functioning. To this end in view, the pupil is to be led to such goals as an understanding of the lessons of history, a realization of the importance of geographical factors in human affairs and the effect of economic condition on the people and the government. It is hoped that he will apply these lessons and the principles in solving problems and in making wise decisions in life.

Many of us may not be sure about how the achievement of these objectives can be evaluated. The result is that many teachers talk about the need for the pupils to achieve the broader and more complex goals but in actual practice the only stress on the learning of names, dates, events and other facts. To many, history means merely memorizing the dates, the names of the battles, the names of the military and political leaders while geography is associated with the learning of such things as the names of state capitals, principal rivers and boundary lines, etc.

It is necessary that we lay more stress on the evaluation of those broad understandings and abilities that constitute the more important goals of social science, giving more careful thought to the defining of the specific objectives of instruction in the beginning.

Objective Type/Objective-based Questions

In the words of Harry D. Berg, an objective type test is made up of a series of scoring units selected in such a manner and of such a number that a valid sample of the trait to be measured is provided. Its distinguishing characteristic is that it poses a task with a solution that is pre-determined by the item writer. This quality is incorporated in the testing situation by asking a question and then providing the student with alternative answers only one of which is correct Though in the supply of completion type items the alternatives are not stated but the correct answer is still determined.

An objective type item can be scored rapidly in a completely uniform and impersonal fashion, the trait tested for can be widely sampled and the tasks presented can be made identical for all students. If well conceived, an objective item provides equal opportunities to students to recall information and follow a built-in line of reasoning with no chance of evading the item writer's intent. On the other hand, it is incapable of providing a direct measure of writing ability, of expression and of measuring the capacity to organize the material and to demonstrate knowledge in depth.

Major forms of objective type test items are (i) the true-false, (ii) the matching, (iii) the completion, and (iv) the multiple-choice. Each one of these has its own uses. For example, true-false is specially useful in testing situations in which there are only two good available responses. The matching exercise can economize on space and time in testing for a knowledge of terms, names and places. The completion type is useful for drill exercises.

A more difficult but genuine problem develops when an attempt is made to classify items, regardless of the form of the item. Objectives in the social sciences are commonly listed under such headings as 'an appreciation of', 'an understanding of', 'an ability to apply', 'a desirable attitude towards', and so on. In most cases little attention is paid to visualize such objectives in behavioural terms and even less to determining whether the test items truly require the student to demonstrate the desired behaviour. In certain cases no attention is at all paid to the objectives for which a certain subject is being taught. The subject is merely taught for the sake of mere imparting factual knowledge to the pupils to enable them to pass their examinations which demand only rote memorization of facts

On the other hand, when a question is framed with a deliberate attention to test some particular objective, it is called an objective-based question. An objective-based question can be of any form It may be objective type, short-answer, very short-answer or essay type but its relevance depends on how best the question is framed to test the desired objective, the intended learning outcome and the content.

The evidence of comprehension by the pupils in the social studies is the ability to translate ideas from one form to another, to identify examples, to compare, classify or interpret ideas or principles. In geography and economics a pupil must be able to translate map symbols or graphical data into a verbal description of what they actually represent. This ability can be tested through the use of supply type items in which the examinee is presented with a symbol and is expected to tell what it means. It can also be measured by using a multiple-choice or matching exercise.

One of the ultimate objectives of social studies instruction is to enable the pupils to apply the laws and principles learnt in new situation. This ability can be measured most directly through an essay type question in which the pupils are required to analyse, hypothesise, reason or predict a given phenomena as well as through objective type items. One approach to measure application can be through presentation of information in the form of a graph, cartoon, chart, time line or a map which has not been used in instruction.

There is intrinsic relationship between objectives, learning experiences and evaluation techniques. Objectives guide teaching and testing both Instruction is planned in order to achieve the objectives set in advance and evaluation techniques help the teacher to know the extent to which the learning experiences have been effective in achieving the desired objectives. Thus objective based evaluation dynamizes the whole educational programme. If the questions in the examination are framed to test higher abilities it will also become necessary for teachers to gear the instructional programme effectively to inculcate among the pupils those qualities to meet that standard and prove the worth of the instructional programme. Instruction, no doubt, will tend to satisfy the goal set by the question papers. If the questions are set to test rote memory no real instructional purpose will be served but if they are framed to test higher abilities the instruction will evolve accordingly and as a consequence it will serve as a device to promote the all-round development of the pupil's academic achievement

Objectives have two types of specifications. One is competence specification and the other is content specification. Both these converge to a central point which we call a situation. The situation which synthesizes the two types of specifications of the objectives, becomes the basis of providing instruction as well as preparing tools for evaluating pupils' achievement in respect of both the specifications.

Let us now take some concrete examples of each objective and its various specifications. This will be helpful in framing and ascertaining the questions of different forms testing different objectives or various specifications implied by those objectives.

1. KNOWLEDGE

1.1 *Recalls.* Give any two distinctive features of the town-planning of Mohenjodaro.

1.2 *Recognizes.* What argument has been put forward by scholars to justify the statement that the Indus Valley Civilization was created by the foreign people ?

2. UNDERSTANDING

2 1 *Compares.* In which two ways was the ancient Chinese social division similar to or different from the caste system of the Aryans ?

2.2 *Illustrates.* Give two examples to support that the Indus Valley Civilization was an urban one.

2.2 *Detects errors.* Why can Uttar Pradesh not be called a 'state' in the real sense of the word ?

2.4 *Explains.* Enumerate three important causes of the inflationary trend in India and explain one of them which the government finds difficult to control.

2.5 *Interprets.* Climatic regions can be defined according to fixed values of temperature and rainfall. To which elements of climate does such a classification *not* refer ?

2.6 *Classifies.* To which climatic regions do the Congo and Amazon Basins belong ?

2.7 *Discriminates.* Why do extremes of temperature occur on land but not on oceans in the same latitudes ?

3. APPLICATION

3.1 *Analyses.* Which modern political ideology supplies the best conditions for a welfare state and how ?

3.2 *Tests a hypothesis.* What experimental procedure would you adopt to test the hypothesis that the seeds do not germinate when sown deep ?

3 3 *Sets up a hypothesis.* It is said that though the Chinese script is derived from the Somerian script yet it is different from it. Justify.

3.4 *Develops power of reasoning.* "Although Greeks were influenced in many ways by non-Greek cultures, but it is Crete where we may find the seeds of Greek Civilization". Explain.

3.5 *Selects relevant facts.* How does the excavation of Mycenae corroborate the evidence of Homer ?

3.6 *Advances arguments* It is said that Judaism and Christianity are greatly indebted to Zorostrianism Justify the statement by giving two arguments.

3.7 *Establishes relationship.* Which one of the following is the *best* indication that the Himalayas in the past continued to rise slowly and gradually ?

A. Zigzag course of the rivers near their origin.
B Abundance of rapids but absence of waterfalls.
C. Formation of lakes in the course of rivers.
D. Antecedant drainage of the river Brahmaputra.
E. The multidirectional radiation of rivers from the Himalayas.

3.8 *Draws inferences.* It is said that the Chinese called themselves the "Sons of Han" for centuries. What inference do you draw from the above statement regarding the Han Dynasty ?

The above examples appear enough for the teachers to be able to use a variety of testing tools in evaluating the cognitive growth of the pupils. The non-cognitive aspects which are equally or even more important ought also to get the due attention of the educators for making evaluation comprehensive. ☐

The Use and Abuse of Behavioural Objectives

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Introduction

THE STATEMENTS of aims and objectives form the starting as well as the terminal points of the education process. The success or otherwise of an educational enterprise is assessed by the extent it actualizes its pre-stated objectives It was realized long back (Bobbitt, 1924, Tyler, 1949) that little headway could be made in the sectors of teaching or testing if educational intents were not specified in terms of students' behaviours. This sort of thinking got further impetus from three quarters, viz. the testing movement, the research findings of defence and industry training, and the programmed instruction movement In India, the specification of objectives came into prominence in late fifties along with the movement of evaluation.

The first monumental attempt to define educational objectives in behavioural terms was made by Bloom (1956). His model, with minor variations, was followed in India. The NCERT put in commendable efforts to institutionalize the Bloom's model of instructional objectives.

With the advent of programmed instruction, the call to define objectives operationally became even more pronounced. The need and importance of behavioural objectives was constantly reiterated by Green (1962), Mager (1962), Gagne (1965), Taber *et al.* (1965), Leith (1964), Skinner (1968) and many others.

Various arguments were adduced for couching objectives in behavioural terms (Mager, 1962, Gagne, 1965, Tyler, 1964, Lindvall, 1964). Four arguments stand out prominently:

1. Behavioural objectives reveal to

classroom practitioners and curriculum planners the nature of educational intents aimed at.

2 They help teachers to select appropriate content.

3 They help teachers to select appropriate teaching-learning styles and strategies.

4. They help teachers and students to evaluate their teaching-learning outcomes

The call to define objectives operationally, presents the one side of the picture. The other side of the picture presents the reverse point of view Strong arguments, from many quarters, have been advanced against the use of behavioural objectives. It has also been contended that it is useless, meaningless and futile to couch objectives in behavioural terms; that we should desist from doing so.

Eisner (1967) gave four reasons against the use of behavioural objectives:

1. The outcome of instruction is far more numerous than what can be covered by behavioural objectives.
2. There are some subject areas which cannot be translated into behavioural objectives.
3. There are some objectives which cannot be truly evaluated, i e. there are no standards to evaluate some objectives.
4. It is educationally unsound to give a list of objectives to teachers prior to teaching

Besides Eisner, there are a few others who also speak in the same vein Atkin (1968) argued that specification of objectives would unwholesomely influence curriculum development. Stenhouse (1969) argued that behavioural objectives may develop convergent thinking.

In recent years some other arguments have also been raised against behavioural objectives. Ross (1972) argued that all theoretical concepts cannot be translated into behavioural objectives. Mitchell (1972) argued that students' capabilities and terminal behaviours are not isomorphic (when we state behavioural objectives we state only a part of students' capabilities). Moore (1973) argued that behavioural objectives cannot encompass higher order cognitive abilities, that they miserably fail to state affective behaviours. He admonished the curriculum planners to look beyond the measurable.

Popham (1968) examined the validity of most of the arguments against behavioural objectives and concluded that, by and large, all arguments raised against behavioural objectives are insipid, ill-founded and ill-conceived.

When one examines these arguments, one finds that the role of behavioural objectives has not been seen in proper perspective. The controversy is mostly emotional Neither the use of behavioural objectives can bring in the educational millenium nor their disuse would land us in the dreary land of the educational void. *An amorous attachment to behavioural objectives is as harmful as their outright, uncritical rejection*

This paper attempts to examine the role of behavioural objectives in instruction and education and tries dispassionately to focus attention on the uses and the abuses of behavioural objectives. It is hoped that this analysis will help teacher educators to see behavioural objectives in the right perspective.

Terms Defined

Human communication often fails

due to 'semantic noise'. The meaning of words used connote differently to different persons. It is essential that we should understand the exact meaning of the terms we use. In literature on objectives various terms are in vogue. The terms are: aims, purposes, intents, goals, objectives, behavioural objectives, instructional and educational objectives, terminal behaviours, final repertoire, etc. Frequently they are used in a loose manner.

In this paper we propose to use *five* terms with specific meanings. *Educational aims*, for us would mean broad and global aspirations of the society. *Educational objectives* would mean objectives aspired by educational institutions, ie.. objectives which are likely to be achieved through the programmes of educational institutions like schools and colleges. *Instructional objectives* would mean those objectives which teachers try to achieve through the process of instruction.

We further divide instructional objectives into two categories, viz. *operational or behavioural objectives* (i.e. objectives which are stated in terms of operations to be performed by the learner after the instructional event is over) and *aspirational objectives* (i e. statements of objectives stated in terms of teacher's aspiration)

Elaboration of Terms

Educational aims . Educational aims are very global, complex and long-term aspirations of the society. At times the aims of education are so broad that they seem to encompass the aims of life itself. In ancient India the aim of education was *svanubhuti* (self-realization). In Greece it was realization of Truth, Beauty and Goodness. Verily they are the aims of life itself.

In modern education terms such as development of 'productive citizenship', 'creative use of leisure', 'developing tolerant, critical and catholic outlook', and 'democratic and secular frame of mind', or 'inculcation of life-affirming tendencies', etc. are the educational aims.

People *educate* themselves through their commerce with the society. It is the 'frequency, intensity and the variety of interaction with the environment (Leonard, 1970) that educate a man. Thus the educational aims are attained through life experiences. However, the society has given the major responsibility of educating its younger people to schools (any type of educational or professional institution); although it should be well understood that *education is not the monopoly of educational institutions*. However, the society had set up institutions, call them schools, or colleges or universities, to work exclusively of instructing students. These institutions, at their level formulate objectives; we call them *educational objectives* which are in consonance with and converge into educational aims.

Educational objectives . Educational aims and educational objectives differ not in kind but on dimensions of generality, complexity, abstractness and time. Educational aims are very general, complex, abstract and demand a whole life time. Educational objectives, on the other hand, are less general, less complex, less abstract and attainable over a shorter period of time. Different educational objectives conjointly contribute to the realization of one educational aim.

An example can be taken to illustrate relationship between educational aims and educational objectives The aim of education is to prepare 'productive and critical' citizens. Now, the terms 'productive' and 'critical' are very complex and global. Unless these terms are analysed and specified further, educational institutions cannot design their curriculum to attain the said aim. Hence the term 'productive' citizen is analysed into its constituent elements. We assume that a person who is literate, who has been trained in a certain profession, who loves labour, etc. can become a productive citizen Thus educational institutions plan their curriculum so as to include activities and programmes which help in the development of knowledge and skills related to production and healthy attitude towards work and labour.

Institutional objectives · This term means behaviour(s) developed in the learner through the process of instruction. To illustrate the concept of instructional objectives let us extend the same example. We have seen that educational objectives like development of linguistic skills, productive skills, positive attitude towards work, etc. help in some measure in realization of an educational aim like the 'productive citizens'. But the educational objectives like development of 'linguistic skill', or 'vocational skill' need more specification, more precision.

The teacher, therefore, breaks down the objective 'linguistic skills' into sub-objectives like skills of reading, writing or speaking and again breaks the sub-objectives into sub-objectives until he reaches a stage which he can actualize within a short span of time. These objectives can be expressed both in mentalistic aspirational as well as behavioural (operational) terms. It is always advisable for the classroom teacher to express objectives in operational terms.

Let us further elaborate the point that the relationship of aims and objectives runs on a continuum. Let us assume that one of the aims of education is to develop qualities of productive citizenship in young children.

The aim 'productive citizenship' is a never-ending process. Even by devoting the whole life time, one cannot say with confidence that he has really become a productive citizen. Yet educational institutions do try, in their humble way, to help children become productive citizens.

The productiveness of a citizen depends upon *many* aspects It depends upon the fact how the individual contributes to the society economically, socially, culturally, literally and politically. A systematic programme, designed to develop 'productiveness' in children should take into account the analysis of all the aforesaid factors

But it is well nigh impossible for an educational system to design a course that would achieve all the aspects of personality which lead to the realization of productiveness in an instance of time Schools choose a few areas and work on them. Thus schools choose an area like development of linguistic capabilities and work on it. The reason is linguistic capabilities in some way are related to productiveness.

The term linguistic ability in itself, covers a wide variety of language skills like reading, writing, speaking, listening, comprehending the hidden meanings, writing creative pieces, appreciating poetic beauty, etc. All these objectives are very relevant for developing genuine linguistic capability. But schools, at a given time, have to be selective.

Educational objective like 'development of linguistic capabilities' has to be expressed and analysed at various levels of specificity and complexity until it gains a manageable proportion which can be handled by the teacher. This relationship is explained below.

AIM-OBJECTIVE CONTINUUM

Educational Aim agency=personal initiative and interaction with the environment)	*High*	Developing qualities of productive citizenship
Educational Objective (agency=school)	Levels of abstraction, complexity and generality	Developing linguistic capabilities like ability to speak, write and comprehend written or oral communication. Developing other professional/ vocational capabilities relating to productiveness
Instructional Objective (agency=instructional situations)	*Low*	Ability to communicate Ability to write Ability to use apostrophe marks in a written communication to show : (*i*) possession (Peel's book) (*ii*) contraction (can't — cannot (*iii*) plurality (50's)

The sum is, there is an organic relationship between instructional objectives, educational objectives and educational aims Different instructional objectives help in realizing an educational objective and different educational objectives help in realizing an educational aim. Teachers should always look for and look into this sort of relationship among instructional objectives, educational objectives and educational aims. Unless this relationship is seen, educational enterprise is likely to be a purposeless, spiritless and mutually conflicting venture Such an educational system is bound to invite scathing attacks from an Illitch or a Reimer.

People especially belonging to educational technology camp advocate that *instructional objectives must be written in operational and behavioural terms*, which are overt and measurable The aspirational instructional objectives which are couched in aspirational (or mentalistic) terms should be avoided at the classroom teaching level But at the institutional level aspirational objectives are and should be acceptable.

A Time to Recant

The controversy between behavioural and mentalistic objectives is futile and unreal. Many a time the teacher-educator is also caught into this web. He starts taking sides. Sometimes he slavingly follows the behavioural school and shows an obsessive fondness for operational and measurable objectives bringing up all the jargon of Mager (1962) and Miller (1962). At other times, he clothes his objectives in mystic mentalistic terms (which doesn't help him a bit in designing and evaluating learning experiences) and makes instructional objectives look like global educational aims.

Behavioural objectives have a limited usefulness. They are very useful at the classroom instruction level. But they have little value when they are used to cover educational objectives or aims. To put it in other words: educational aims and objectives need not be couched in operational and measurable terms, but instructional objectives be couched in measurable and operational terms.

The Crucial Points

There are two crucial points to be remembered by a teacher-educator. Firstly, the teacher-educator should see that his student-teacher thoroughly grasps the educational intents at various levels. Educational aims, complex global long-term societal aspirations, as they are, should be stated at a high level of generality and abstractness. Educational objectives should be stated in less complex, less abstract terms Instructional objectives, objectives on which the classroom teacher is engaged, *must be* stated in operational terms. They must not be stated in aspirational language. They must be behavioural objectives, i.e. instructional objectives couched in behavioural terms.

Educational aims and objectives need not be expressed in measurable terms. But instructional objectives should be behavioural. This will bring into operation the idea of *accountability*. If we do not couch instructional objectives in behavioural and operational terms, we will never be able to introduce accountability in our classroom instruction In such a case instructional process would ever remain-a loose trial-and-error game.

The second important point to be remembered by the student-teacher is *to identify the relationship* of instructional objectives, with educational objectives and aims. The teacher should relate classroom instructional experiences with larger objectives of schooling and education.

The great abuse of behavioural objectives would lie in treating them in isolation, i.e. not seeing relationship between instructional objectives, educational objectives, and educational aims.

Instructional objectives must flower into educational objectives and educational objectives should help in realizing educational aims. The classroom teacher *must* know how operational instructional objectives are related to broader educational objectives and how the latter are related to educational aims. Unless this relationship is seen by the teacher, achievement of discrete instructional objectives is not going to be a big gain. It is the duty of teacher-educators to provide such insight to their student-teachers so that they may see the interrelatedness of instructional objectives and educational aims.

Conclusion .

The author is reminded of an occasion when he visited a classroom where a Hindi lesson on the life of Mahatma Gandhi was being taught. When the lesson was over he asked the teacher as to what were his instructional objectives The teacher with an air of confidence, said : "To develop reverence for non-violence". Was this his instructional objective ? Did he really achieve it ? And if this were so, was the instructional strategy adopted by the teacher appropriate ? Had the teacher used operational behavioural instructional objectives, he would have never talked poetry. The time is ripe and opportune for the teacher-educator to stress the role of behavioural objectives, so as to instal the concept of accountability in instruction.

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Evaluation in Primary Schools

The Emerging Concept

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SURPRISINGLY the examinations have not spared even a six-year old primary student from its ill effects. He is more worried about his marks than his learning The teacher is more concerned with a minimum attainment (33 per cent) of all students rather than helping each student to reach the optimum level Parents are bothered more about the position of their wards irrespective of their potentialities. This is so because the examination is the focus for teachers, ultimate goal for students and standard of achievement for parents and community. The examination is seldom considered a device of helping teachers and learners. Unless the examination is viewed by teachers as only one of the many information-gathering devices in the total process of evaluation, wider scope of evaluation cannot be appreciated. The need for understanding the broader concept of evaluation is obvious

What is Evaluation ?

Why do we evaluate at all ? Are we interested to know students' present achievement, to explore whether they can benefit from instruction, to identify the difficulties if any in their learning; to know if teaching was effective as revealed in student learning; to judge if they need remedial instruction; to find out the adequacies or inadequacies in learning, to take certain decision for grading, promoting or detaining students or to pass a judgement about a student-teacher or a programme. A good institution will be interested in all these purposes which must be fulfilled by good evaluation programmes. Evaluation, therefore, can be defined as a process of collecting information which is used in forming judgements that help in making decisions. These three aspects of evaluation are given below.

1 *Information Aspect*

(*a*) Information already available
(*b*) Information to be collected
(*c*) Sources of information
(*d*) Tools and techniques to be used
(*e*) When, how and who to collect the information ?

2. *Judgement Aspect*

(*a*) Analysis of information
(*b*) Recording of information
(*c*) Interpreting the information
(*d*) Forming judgements
(*e*) Summarizing and reporting

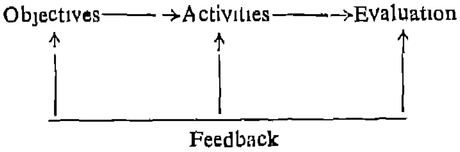
3. *Decision-making Aspect*

(*a*) Specify your objective
(*b*) Identify probable courses of action
(*c*) Weigh the expected outcomes of each alternative
(*d*) Select the most suitable courses of action
(*e*) Use the evidence for improving learning and teaching.

From the above analysis of the three aspects we see that a teacher must be conscious of the decisions he wants to aim at This helps him to specify his objectives clearly in advance, gather the data, analyse it and form judgements which may be used for making decisions. Such decisions may relate to pupils' learning or teaching-learning strategies. The traditional 'judgemental mentality' of declaring students pass and fail, good and bad, win or loose gives way to that of 'learning mentality' which emphasizes the identification of shortcomings and weaknesses in teaching and learning with a focus on improvement. Diagnosing of our weaknesses and inadequacies as revealed through evaluation must form the basis of improvement we intend to make.

Evaluation in Teaching-Learning Process

Though a number of teaching-learning models are advocated the most simple and usable is the one which depicts the integral relationship between objectives, learning experiences and evaluation with feedback loops as indicated below.



Two basic features of this model are: the integral relationship of the three components of which evaluation is an inseparable part, and the feedback aspect that emerges from the evaluation component and generates the cyclic order. Expressed in simplified form it has the following aspects :

1. Cognizance of instructional objectives.
2. Relevance of teaching-learning activities to achieve those objectives
3. Objective-centred, activity-based evaluation
4. Use of results for adjustment of ends and means.

Characteristics of Evaluation

If the primary teacher is able to see the implications of this simple teaching-learning model he will be able to develop the right concept of modern approach to evaluation in the classroom. In accordance with this model the following characteristics of evaluation may be derived.

1. OBJECTIVE-ORIENTED: Evaluation has a philosophical basis as it involves a question of values. What is worth learning or teach-

ing is reflected in the formulation of objectives which may be intellectual, emotional, social, moral or physical in nature. Even when we accept a few or all of them, the question of preference and weightage comes in. Should we lay more stress on affective objectives than cognitive objectives at the primary stage ? Should we teach moral value at this stage ? Is socially useful productive work more important than teaching of social studies ? All such questions involve preference of values depending upon the idea of goodness or what is considered a desirable behaviour In terms of judgemental aspect also the evaluator has to be cognizant of the referrent he is going to use. Since judgements can be made in terms of a class, an individual or a performance standard, it is again a question of values, preference or purpose in the light of which judgements are to be made. As evaluation involves some type of value-judgements it has to make a choice among the competing values or cherished values which become the basis for obtaining information as well as interpretation. It is, therefore, suggested that evaluation should be based on predetermined instructional objectives and the evidence be validated against those very objectives.

2. ACTIVITY-ORIENTED: External examinations are criticized for various reasons. One reason is that external evaluator is unfamiliar with the type of learning activities provided to the students. Unless the evaluator is conversant with what has been taught and how it was taught the validity of evaluation can be questioned. Therefore, apart from instructional objectives, the knowledge of learning activities is essential for good evaluation. This is possible only when the teacher who teaches is also the evaluator.

Another side of activity-based evaluation is that the activity which is used as a teaching device can be used as testing device also. This is a very natural method and small children will not be conscious of being examined. At the same time emphasis would shift from content-oriented evaluation to activity-oriented evaluation. Keeping in view the students' maturity level, especially during the first two years of lower primary, the activity becomes the means of learning as well as the basis for judging the learning outcomes. Hence evaluation at the primary stage should be activity-based and be in accordance with the type of activities provided for attainment of instructional objectives.

MEASUREMENT ASPECT : Measurement is a pre-requisite to any evaluation. If measurement, as sometimes it is defined, is a quantitive concept, then non-measurement (e.g. teacher's view of student's interest, based on his observation) is also basic to evaluation. Unless an attribute is measureable it is not amenable to testing since measurement provides data or information on the basis of which judgements are formed. It must yield evidence which is valid and reliable.

It provides scientific basis to evaluation, if the measuring tools and techniques are relevant to the intended evidence and they yield dependable scores or grades. Objectivity and practicability are other criteria of good measurement. Unless measurement value of an evaluation instrument is satisfactory, it is futile to go ahead with judgemental aspect of evaluation.

4. QUALITATIVE ASPECT : In contrast to measurement or quantitative aspect which yields numerical data, qualitative measurement yields broad grades as A, B, C.... or descriptive data which reflects

quality of achievement. How funny it looks to assign numbers, like 53 per cent marks on initiative, 60 per cent on attitudes, 35 per cent marks on health habits, 72 per cent on oral expression ? For combining all these to an average number of 55 per cent makes it is further ridiculous. Apart from the written examination, almost all other techniques of evaluation yield data which are qualitative in nature. Observation of civic sense, pronunciation, an improvised model, practical work, ability to observe, argue, draw, etc. can only be evaluated qualitatively. At the elementary stage the myth of marks should be done away with. Henceforth, appraisal of emotional, social and physical development would receive more attention both in teaching and evaluation. Therefore, qualitative assessment is of vital importance in judging students' growth. Therefore, qualitative assessment may be preferred to quantitative assessment in judging pupils' growth in non-scholastic areas.

5. MASTERY-ORIENTED : It is not uncommon to find that examinations are restricted to the testing of only selected behaviours of the learners. If an activity or expected learning outcomes comprise nine behaviours, the present evaluation system may take care of four, five or six in its sampling. Out of these six, if a student acquires two he is considered to have adequate performance and is promoted. But the mastery concept expects the evaluator to satisfy himself on all the nine behaviours. In other words, the aim is to see that all those expected behaviours that make up the objective or the performance standard (concepts, skills, etc) must be considered essential for learning as well as for testing. This is more important at the primary stage where development of basic concepts, basic skills and basic numerical operations must be thoroughly understood and developed. Hence, the evaluation apparatus should be geared to collecting of information on all learning outcomes as implied in the predetermined instructional objectives, instead of random testing of a few of them.

6. DIAGNOSTIC VIEW · At the elementary stage the focus of evaluation activity is on discovering learners' weaknesses and their causes. Diagnosis may be necessary before, during or after teaching schedule. Accordingly, the purpose is placement of students for instruction, adapting instruction to the needs of students and for judging adequacy of students' learning. By and large, evaluation is used to improve instructional efficiency and pupils' learning. At every stage of teaching-learning process focus of evaluating students is not on grading them or certifying their achievement for promotion Evaluation is used more as a teaching device than as a rubber-stamp on students' learning.

The main purpose of evaluation is to discover the areas of students' weaknesses, inadequacies in teaching and the possible reasons for that. When this is known both teaching and learning can be adapted for improvement of both Modern view of evaluation stresses the use of evaluation as a means of improving students' learning rather than merely measuring their achievement. Since ultimate aim is to improve students' learning, it is this diagnostic aspect of evaluation which becomes crucial to forming judgements on the basis of which decisions regarding remedial work or further learning are taken. It is, therefore, suggested that evaluation be considered more as a process of teachers' self-appraisal than students' appraisal in order to adapt instruction to learners' needs for accelerating their learning.

7. INDIVIDUAL-ORIENTED . Evaluation is no longer considered a class concept. When students at the primary stage come with different educational background, homes, chronological ages, modes of learning and varied speed of learning, how can the same yardstick of evaluation be applied to all the students ?' Some students may be more amenable to oral testing than written examinations. Therefore, evaluation of the whole class at the same time is not called for Likewise, while interpreting the information collected about students, care has to be taken that each individual must be judged in his own right with reference to the optimum level of achievement or proficiency expected. He need not ordinarily be compared with the class. More significant requirement is in comparison with his own achievement or growth at two different times. Reference to self-achievement is more useful for his further improvement. All judgements must, therefore, be formed on the basis of cumulative achievement of the learner and not in terms of the total class. The purpose is to bring each learner up to a predetermined optimum level and, therefore, evaluation has to be done in accordance with the needs of the individual student or a group of students. Hence, evaluation may be considered as an individualized activity and the evaluation data that accrues from it should be used to form judgements with reference to the learner himself.

8. CONTINUITY : In order to make evaluation a tool of learning it has to be used more frequently as a part of teaching-learning activities. Since individual grows all the times and acquires new behaviours it becomes imperative that desirability and adequacy of these behaviours be also jugded side by side. This is necessary to affect changes in teaching and learning and acquaint students with what is mastered by them and what is still to be mastered in order to reinforce and feedback the results. This continuity can be ensured by making performance assessment as a part of teaching-learning activity. The more frequent the check-ups are provided for regular feedback of students' performance, the more continuous the evaluation process becomes. Continuity of evaluation brings quality control to the process of learning. Therefore, evaluation should be made completely integrative with the teaching-learning process instead of treating it as end-of-the-course activity.

9. FEEDBACK ASPECT . Relationship among objectives, instruction and evaluation as depicted in the model highlights interaction of the three components of the teaching-learning process. It is the feedback component of evaluation which has received little attention in our system of evaluation. Evaluation at present goes up to the limit of collecting data and interpretation of data to a limited extent. But how to use the data for improvement of learning or the learning process is not considered a useful activity. But it is this aspect that helps to judge the suitability of the objectives, efficiency of the process of teaching or learning the quality of the measuring tool itself and even the accountability of the administrative decisions. It is on the basis of feedback data that learner can be informed of the adequacies of his learning to reinforce learning. In the earlier stages extrinsic feedback in the form of encouragement, reward, incentives, etc. can be provided to the students. A regular feedback of all evaluation acts

may ultimately lead to intrinsic feedback for the learner. Thus the most outstanding feature of evaluation is its ecological aspect which generates interaction among the various components of the teaching-learning process, thereby leading to improvement in the learner, teacher, learning teaching and even in administration. This interaction among various components of the educational process generated by evaluation through feedback mechanism, is indeed the spirit of modern evaluation Hence, evaluation should be considered as a service component of the teaching-learning process to emphasize the use of evaluation results through regular feedback to improve teaching and learning.

Evaluation : A Total School Concept

The foregoing discussion on the concept and scope of evaluation is directed towards the role of evaluation in the educational process. Instead of traditional single shot-examination the emphasis is given on continual appraisal The recognition of non-scholastic aspects of pupils' development for evaluating students' growth as an additional requirement, besides intellectual development, is stressed. The need for use of other evaluation tools, besides the written tests, is emphasized to ensure more valid evidences Evaluation as a diagnostic device rather than a grading instrument is appreciated Attention is focussed on improvement of students' learning rather than on measurement of their learning alone. Evaluation as an integrative and dynamic concept is visualized to generate interaction among the teaching-learning components. Suitability of objectives, learning experiences and tools of evaluation is put to test by the new approach The stress is laid on the individual-based rather than class-based evaluation in terms of mastery of the fundamentals. □

Educational News

Volume IV November 1978 Number 4

U.K. plan to hit C' wealth students

THE GOVERNMENT yesterday (24.10.78) announced plans for radical change in the examination system for Britain's school children—and for the thousands from abroad who come to study here, reports *Patriot* (25 October 1978)

The measure will especially affect thousands of candidates in Commonwealth countries who sit for the British General Certificate of Education (GCE) ordinary level examination, set by such bodies as the Oxford and Cambridge or the Cambridge school certificate boards of examiners.

The government now plans that from 1985 the GCE exam. which is intended for the brightest 20 per cent of children aged 16 and over, will be merged with another examination—the Certificate of Secondary Education (CSE)—intended for less academically gifted children.

The existing examination boards will be merged so that 21 of them are reduced to eleven.

At a news conference, Mrs. Shirley Williams, Secretary of State for Education was asked whether the government had taken into account the fact that some schools and also private pupils in the Commonwealth continued to sit for the ordinary level examination set by examiners like those of the Oxford and Cambridge "We are very much aware of that", Mrs. Williams said. "We shall be doing everything possible to ensure that the identity of the new examining boards is clearly understood abroad".

Up to 20,000 foreign children study here at any one time. About 2,500 of them are from Arab countries and Iran. Most will have to sit for the new examination.

Only the "O" level of the GCE is affected. The advance level which is used to decide whether a candidate is suitable for university education, remains untouched.

Mrs Williams said the present system of having two different examinations was difficult to administer and wasted teacher's time.

She rejected charges by the opposition Conservative Party that the planned reforms were "a reckless act of folly which would lower educational standards".

A new approach to teacher training

THE TECHNICAL Teachers Training Institute (TTTI) has introduced a Competency Based Teacher Education (CBTE) from the academic session 1978-79, reports *Rittwest* (Aug. 78) It is the first ever teacher training programme in India based on teacher competencies. CBTE is a new thrust which promises enthusiasm and innovativeness in designing a teacher training programme based on a systematic approach. Collins stated, "Competency Based Teacher Education is an approach to preparing teachers that places great stress on the demonstration of explicit performance criteria as evidence of what the prospective teacher knows and is able to do". This approach appears to be a potentially superior strategy for developing the teachers' knowledge, skills and attitudes necessary to promote and facilitate student learning.

The following are some of its practical advantages :

—Performance-based approach.
—Flexibility in choice of competency.
—Catering to individual interests.
—Self-instructional.
—Multi-media and multi-strategy approach.
—Adaptability to individual pace of learning.
—Stress on exit but not on entrance requirements
—Shorter course duration.

Ninety-one competency statements have been finalized, based on the opinions of over 1100 polytechnic teachers. These statements which focus attention on a teacher's job profile fall under these categories : Plan, Instruct, Evaluate, Guide, Manage, Public and Human Relations, and Professional Role.

The programme has been planned for three phases of about three months' duration each Thirty-seven competencies have been identified for the first phase. The emphasis in the certification of competencies will generally be on what the teachers can accomplish or demonstrate rather than what they know.

The new approach is expected to be stimulating, challenging and exciting to the teacher-trainees.

Children with special educational needs

ACCORDING to *Survey of Current Affairs* (BIS), a new framework of special education, based on the concept of special educational need, has been recommended in *Special Educational Needs*, the report of the Warnock Committee on the education of handicapped children and young people. It would cover not only children with disabilities of mind or body but also those who have significant difficulties in learning, many of whom are at present the concern of remedial services, as well as those with emotional or behavioural disorders. The abolition of the present statutory categorization of handicapped pupils is recommended The report singles out several priority areas : provision for the under-fives and the over-16s ; developments in teacher education and training ; the organization of a special education advisory and suppor service, and the promotion and coordination of research and development. The planning of service, the report proposes, should be based on the assumption, suggested by surveys, that about one in six children at any time and up to one in five at some time in their school career require some form of special educational provision.

The Government is to hold wide consultations before reaching decisions on the report's recommendations.

A school on rails in Montreal

THE JOHN ABBOTT college authorities in Montreal noticed that commuters from the west of Montreal spent 42 minutes in the train on their way to work every morning. Why not make good use of this time ? With the agreement of the railway authorities (Canadian Pacific) the college will soon be giving classes in French and an introduction to the Canadian business world in one of the cars on the train. Syllabuses of both courses are similar to those followed by the college's further education service on campus.

The railway does not charge the college any rent. Passengers simply have to buy their ticket. The 72-seat car, however, will only accommodate 59 people and the college will compensate the company for lost revenue. The fee for the course is the same as the fee for a college evening class. Mrs. Phyllis Blaukopf, the college's further education coordinator, pointed out that the school on rails will avoid the need for people to attend classes after their day's work.

It is worth recalling that in the twenties the provincial governments and the railway company had launched a similar scheme for children living in remote areas, particularly in northern Ontario. Teachers in the first school on rails lived in the trains, spent a week in a locality and returned there a week or two later.

—Hebdo Canada in *Innovations*

Portugal's "packaging useful to schools" campaign

THIS CAMPAIGN resulted in the release of 22 million units of educational material suitable for use in primary schools, in the packaging of a number of widely used commercial products such as washing powder, toothpaste and sweets, according to a report published in *Science Education Newsletter* of the British Council.

The way in which it was conducted was usual and deserves explanation. The idea was proposed by Jose Francisco Nereu who was working in the Directorate of Basic Education. It was included in the programme of the Ministry of Education and Scientific Research. An appeal was made through press, radio and television for support from business firms. A voluntary committee coordinated the response. Ideas were received for the teaching aids needed by the least well equipped primary schools. These were linked with the offers of commercial firms to take part in the scheme, and consultation with their advertising agencies and marketing executives followed. Prototypes were approved by the Ministry and the firm concerned authorized to use the campaign's symbol on the packaged product.

The materials which appeared included detachable letters, punctuation marks, and mathematical signs, maps, rulers, protractors, clock faces and compass cards, a miniature marionette theatre and strip cartoons on the history of common fruits. In some cases several manufacturers co-operated in the production of one project. The public were asked to give packaging materials with the campaign symbol on them to the nearest school or administrative office, to be passed to the schools. The results of the campaign have not been evaluated as the Ministry has been unable to continue its support but it would appear to be a very useful pattern for others to develop. ☐

Knowing is the task of subjects, not of objects It is as a subject, and only as such, that a man or woman can really know. In the learning process the only person who really *learns* is s/he who appropriates what is learned, who apprehends and thereby re-invents that learning, s/he who is able to apply the appropriated learning to concrete existential situations.

—PAULO FREIRE
Education for Critical Concsiousness

Book Reviews

Wastage in Primary Education, K. Venkata Subramaniam. Department of Education, University of York, Heslington, York, England, 1977, pp. 70. Unpriced

VENKATA SUBRAMANIAM presented in England an open seminar paper on Wastage in Primary Education, with special reference to Tamil Nadu, India. The present publication is the printed version of that seminar paper. The author, a seasoned educationist, is fully aware of the problems facing primary education. His official position certainly provides him with facilities where this kind of information should be readily available.

Education, of late, is being classed with industry. It surprises no one when criteria of efficiency are applied to education. In the present paper also the author talks of 'internal' efficiency of the system and goes to the extent of raising a non-Benthamite equation: "Which is greater—a smaller number of people with a greater sum of knowledge, or a great number of people with a lesser sum of knowledge ?" In fact, several Indian educationists and planners have been plagued by the problem of numbers. India has been called by various writers : 'The Continent of Circe', 'The Area of Darkness', etc. The truth remains that it is a country of the vast multitudes of illiterates from whom the world of letters has been completely shut. We all know by now why children are going to schools and why our schools are not able to retain those who reach them willy-nilly. Indeed, the total number of illiterates has been increasing fast every year It is an additional burden on our resources, meagre as they already are. It would be a truism to state that Tamil Nadu does not face problems which are peculiar to that area alone. They are largely applicable elsewhere as well. Of course, the major problem is how to remedy the situation as it obtains.

The author of this book has done a neat job. He has calculated the cost of wastage and also the excess cost of wastage in the country He has compared inter-state particulars with reference to percentage of budget expenditure on education to the respective Net Domestic Products and computed their variations also. From that point of view the study is both complete and exhaustive However, by basing his study on an NCERT publication, which is more than a decade old, the author has slipped up on several points. I am not suggesting that things have significantly changed during this period. Surely, the relative importance and grading of factors has undergone some change. For example, shift system is not a common feature in the north and neither are all elementary schools as unattractive and financially poor as they were once or the majority are today. Similarly, the non-formal system had not even been heard of at one time. There is no suggestion that the things have brightened up. But surely there are signs of improvement The author should have taken note of this fact also. Perhaps the Western audience takes to imagine that the East is unchanging and nothing much can ever happen here. Indians being polite seldom fail to oblige their Western hosts.

—R.P.S.

Documentation and Information Services Techniques and System B Guha. World Press, Calcutta, 1978, pp. xv+369 Price : Rs. 85.00.

WITH THE evergrowing number of books, periodicals, and corresponding increase in the size of library collection, the number of readers and changes in search strategy have increased the need and importance of documentation work and services The documentation activities of a country are very much interlinked with its research and developmental activities In India this close relationship has been quite in evidence since Independence. With the successive five-year developmental plans more emphasis has been given on scientific research and, in turn, on documentation and information facilities. The logic of the situation in any developing country obliges the government to take the initiative in developing appropriate documentation facilities side by side with increased support to research and documentation activities and developmental programmes.

All the above considerations must have exerted influence in the setting up of INSDOC in 1952. After this the specialized nature of information requirements of some of the newly developing research complexes, such as atomic energy, defence science, etc obliged the authorities to develop specialized documentation facilities and the result was the establishment of the Library and Information Services of the BARC, DESIDOC, the National Medical Library, the facilities of the Indian Agricultural Research Institute, the Patents Library and Information Centre, the Library of Indian Standards Institution, SENDOC, Social Science Documentation Centre, NIE Library and Documentation Unit for Education, and Indian Council of Historical Research Documentation Centre.

The establishment of various documentation and information centres in different disciplines increased the demand for the trained personnel in the field of documentation and information services. To meet this increased demand an increasing number of library schools in the country are now covering some aspects of the subject in some way in their syllabi to supplement the work of INSDOC and DRTC. It is, therefore, natural that there should be a growing demand for good textbooks in this field.

The book under review is a welcome addition to the scant literature available in this field. As the author himself says :

"The present book is intended to be a textbook in the growing subject of documentation".

The qualities of a good textbook on documentation are :

- (*i*) It should be written by an authority on the subject.
- (*ii*) The author should be a teacher of long standing.
- (*iii*) In addition to teaching, the author should be well versed with the practical work of the Documentation/Information Centre and familiar with the demand of the readers.
- (*iv*) The style should be lucid and language should be simple.
- (*v*) The treatment of the subject should be exhaustive but compact.
- (*vi*) The arrangement of the contents should be in a meaningful and interlinked sequence
- (*vii*) Different type faces should be used in printing to lay emphasis on the important points raised or significant conclusions drawn in the text.
- (*viii*) The text of the book should be adequately supplemented with illustrations, diagrams, charts, tables, etc , wherever necessary.
- (*ix*) The price of the book should be kept fairly low so that each student can purchase it with ease

If we evaluate the book under review upon the anvil of the above characteristics, the book satisfies the test given at items (*i*) to (*iv*) but it fails in item (*v*) as documentation activities in the field of education have been overlooked. It can be admitted that documentation work in the field of education is not enough in comparison to science or even in social sciences but still mention of UGC library or NIE Library and Documentation Unit could have been made. The book is meant for all students studying in INSDOC, DRTC and other library schools and not merely for INSDOC where more emphasis is given on science subjects. Though the demand of Sl. No. *vi* is abundantly satisfied, the standard and style of printing (Sl. No. *vi*) leaves much to be desired. The headings of the chapter or sub-headings within the chapter have not been shown in a bold and dark type to distinguish them clearly from the explanation or exposition of the concept. The book has been adequately supplemented with illustrations, etc. and stands well up to the test (*viii*) but it lacks a chart showing the comparative merits and demerits of different indexing systems discussed in the book. The chart would have been of great help to the students in learning and making choice for one of the systems for their use. The book fails very miserably to the test (*ix*) as the price of the book is very high. The book can be purchased only by libraries and documentations centres and is beyond the reach of the individual readers.

On the whole, the book will evoke much interest in students and teachers alike. Prof. Guha deserves all praise for his pioneering effort. I wish he could have reduced the price of the book by getting a grant from any institution or bringing out a cheaper paper-back student's edition.

S. L. VERMA, NIE Library and Documentation Unit, NCERT, New Delhi.

A Textbook of Educational Psychology (Revised Edition). Hans Raj Bhatia. Macmillan Company of India Limited, 1977 Price : Rs. 32.

EDUCATIONAL PSYCHOLOGY no longer remains a general subject. It has acquired the status of a specialized branch of knowledge good enough to form a constituent of the Indian Science Congress. The result is obvious It has become a popular subject with the students undertaking their postgraduate studies in psychology, sociology or philosophy. At the B Ed. level it is a compulsory paper in most of the universities. Even in teacher training colleges a large number of students are offering this paper—no matter whether their main discipline is science or arts Though repeatedly questioned, the relevance of psychology in education goes unchallenged. The knowledge of this subject has been considered to be helpful in becoming a good teacher.

The popularity of educational psychology as a subject has led several educationists and psychologists to write textbooks in it The books in this area are being written both in Hindi and English. Since it is a vast field and a lot of work has already been done by Western scholars, we find a number of books on educational psychology written by these writers. A student of M.A. can very well consult them but still be needs a book which serves as a textbook for him. The attempt of the author, in his own words, "is to present these Western studies in simple English which could be understood by Indian students''. By implication what he has done is to present a rehash of the Western scholarship (?). Within this limited frame one would be more than unjust to regard his work being anywhere near an original one.

The language of the book is simple and understandable. The book is divided into six sections which cover all the major aspects of educational psychology. The author believes that this would serve as a textbook for M.A., B.Ed. and M.Ed. students. Teachers recommend many books on the subject but only a few students have access to them and the rest find it very difficult to get them. One of the reasons is their high cost. But this difficulty can be overcome by going to libraries and consulting them Secondly, if one wishes to get these books issued from the library, the results are not always encouraging because of their non-availability. Usually libraries buy only a few copies and a few clever students get them issued on teachers' cards for the whole session Bhatia's book would be a great relief to those students who cannot consult these books even in the library

Dr. S.S Chauhan, in his book *Advanced Educational Psychology* (1978), felt that an Indian student should not only know the Western studies and interpretations but also the Indian ones. On going through this book one gets the impression that no Indian author other than Shri Bhatia (he has referred to his own name thrice) has ever done any work in the field of educational psychology. Unfortunately the Indian student is supposed to pass the examination merely by learning about the Western studies. The student might as well be surprised not to see any other work done by an Indian, specially when organizations like UGC, ICSSR, ICSR, ICHR and NCERT are spending thousands of rupees on such researches. The book may serve as a part of the textbook but no conscious Indian teacher would ever recommend it as the only textbook. The author may consider removing this major flaw in the next revised edition. The present edition with the backing of the good publishing agency may sell. But that is about all one could say.

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TO OUR READERS

Due to circumstances beyond our control the *JIE* is delayed. We hope to make up soon for the time lost. The inconvenience caused to our readers is regretted.

—GENERAL EDITOR

The Deprived Child

THE YEAR 1979 has been declared the 'International Year of the Child'. Several problems that confronted children, mostly in the developing countries, have suddenly acquired international proportions and attracted global interests. Children continue to face problems of recognition—both in advanced and developing societies—despite Rousseau in Europe and Tagore in India. Children are loved, abhorred or neglected corresponding to the future needs they are supposed to meet. Everywhere they are loved and therefore well looked after yet they seldom have any independent role or identity. It is a peculiar legacy of modern industrialized society that like showpieces in any drawing-room, small, smartly clad children are permitted to intrude upon visitors as if they have an assigned role of getting a 'house' called 'home'. True, we have moved away from the Victorian norms wherein a child was regarded a mini-man or little lady. As yet the world of the child remains partly unexplored and mysterious. We are told that children enjoy playing, drawing figures, dismantling objects of curiosity and establish rapport with the outside world through touch—both oral and factual. We also know they develop concepts by stages and are highly dependent on their parents, specially mothers in the early stages of their growth. Piaget has opened up a whole world of knowledge about their mental growth and concept formations. Still, much remains to be known about them and perhaps too much to practise in their case.

It should be of interest to all to know that children have their other types of categories and labels as well. We know on the authority of sociologists that there are tribal children, urban children, and so on. Similarly, we are told by psychologists that we have mentally deficient children, bright or backward children, etc. The economists provide us with yet another category that is of economically weaker child, affluent child, etc followed by medical practitioners who have their own classifications to offer. Despite all these labels and cotegorizations we must not overlook the fact that a child is neither an adult nor any object of curiosity. He has a personality of his own. If at all, he hould be treated with consideration and on his own ground.

JIE takes special pleasure to present to its readers a thematic number on the child. The qualifying term in this case is 'deprivation'. Experts have examined the problem and furnished their own solutions. This we regard only a partial introduction to a global problem, because deprivation could be psychological, economic, nutritional, developmental, physiological or what have we. Being teachers our major focus is on reasons why a child would not learn like a normal person. The experts have their own reasons for explaining the phenomenon of non-learning. As teachers and social beings we know learning by itself cannot be a sufficient purpose of education for in its own turn learning must have its bases in an individual child A normal child has quite a different set of requirements as distinguished from a mentally deficient child or a socially deprived child. The yardstick in each case must not be the same. In common parlance, however, the normal average child is treated as the yardstick, for the requirements of other types of children. This is certainly unfortunate. In a highly campetitive world an underprivileged child is a social tragedy. People have to learn to help him to pick up the threads which he is likely to miss

We have around us in this country a large mass of average intelligent children who never enter the portals of learning. They remain outsiders These children one could come across in economically better homes as domestic help, in restaurants and small-time hotels as low-paid workers or in the farms, etc. as helping hands. There is need to recognize their roles and accept them as individuals who have their own learning requirements. Then there are others who would never go to schools because schools do not offer them anything May be they are not fit to learn anything. Classifications help us to focus our attention to specific problems but beyond that they serve no useful purpose We hope that this issue of *JIE* would help us learn a little more about the nature of deprivation and not cloud our vision when clouding of vision may do us considerable harm.

January 1979 *—GENERAL EDITOR*

Deprivation and its Effects upon Child Development

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STUDIES of cognitive aspects of children have revealed that children from the low socio-economic status differed from children of the high socio-economic status on language skills (Lacivita and Yamamoto 1966), articulatory errors (Adler 1973), primary mental abilities (Cardona *et al.* 1973), intelligence (Rowitz 1973), creativity (Ogletree and Ujlaki 1973, William *et al.* 1973). Children from low socio-economic status were found to have performed less well than the children from high socio-economic status on these aspects.

Recently, the Department of Psychology conducted two studies which have important results indicating the effect of low socio-economic status on developing children. The first one was the study of 30 infants from low socio-economic status with 30 infants from very high socio-economic status, all three months old The aspects chosen for the study were. visual discrimination, i.e. differential fixation time to the focused stimuli; attachment behaviour, i.e. differential responses of the infant to the mother (principal caretaker) as compared to other familiar and unfamiliar people, and behaviour profile, i.e characteristic tempo, energy expenditure, focus, mood and rhythmixity typifying the behaviour of individual infant It was found that the infants from low socio-economic status differed significantly in all these aspects, i.e. infants from low socio-economic status had longer fixation time, less attachment behaviour and low reaction pattern

The second one was the study of 30 children of the first-generation learners, sponsored by the NCERT. This dealt with the first-generation learners who belonged to low socio-economic status as compared with the non-first generation learners who belonged to slightly better socio-economic status. It was found that the first-generation learners scored low in language achievement, achievement in mathematics and reading readiness.

In another study sponsored by the NCERT 30 children in the age-group 5+ studying in Classes I and V and having illiterate parents were compared with 30 children studying in the same classes but having literate parents. The main hypothesis was that the parents who were deprived of education will have adverse effect on children's achievement, self-concept, moral problems and social responsibility. A battery of tests were used to measure these different aspects. The results of the study confirmed the hypothesis.

There are indirect evidences from animals and adult human beings regarding the effect of sensory deprivation indicating how without environmental interaction, perceptual systems deteriorate or fail to develop properly. There have also been studies regarding effect of different kinds of environments on the visually directed reaching (White and Held 1966), using the hand under the guidance of the eyes, a facility that is said to distinguish human beings from animals. White and Held studied this behaviour under four different environmental conditions.

The uniform and somewhat bland surroundings of a typical hospital nursery provided a base-line against which the influence of three modified environments were tested. The first modification involved 20 extra minutes per day of handling by the nurses. Under the second modification plan, numerous forms and colours were displayed about the cribs to heighten interest and increase hand-movements. Moreover, extra opportunities for head and neck-movements and extra handling were provided. Under the third modification programme, pacifiers were mounted on the rails of cribs just within the infant's sight to encourage grasping. Extra handling was also included in this programme The results showed that the second and third Es speeded up reaching, a finding that is important because manipulating object is considered central to the development of reaching behaviour.

In this connection it is worthwhile considering 'stimulus deprivation' theory of Piaget (1956) and incongruity-dissonance principle of Hebb (1946) and Hunt(1963). Piaget says that a child from any circumstances has been deprived of substantial portion of variety of stimuli which he is maturationally capable of responding to, is likely to be deficient in the equipment of learning. In restriction in variety from the low socio-economic environment, the segments of stimuli made available to these children tend to have poorer and less systematic ordering of their sequences, thereby, they become less useful to the growth and activation of cognitive potential.

Stimulus deprivation is found to have effects on both the formal and the contentual aspects of cognition. By 'formal' is meant the behaviour by which stimuli are perceived and responded to. By contentual is meant the actual content of the child's knowledge and comprehension. Formal equipment would include perceptual discrimination skills, the ability to sustain attention and the ability to use adults as sources of information and for satisfying curiosity.

Also included would be the establishment of expectations of reward from accumulation of knowledge, from task completion and from adult reinforcement and the ability to delay gratification. Examples of contentual equipment would be the language symbolic system, environmental information, general and environmental orientation and concepts of comparability relatively appropriate to the child's age level. The growth of differential attitudinal set toward learning, according to Piaget may be the resultant of the interaction between formal and contentual levels Extreme case of stimulus deprivation may cause temporary and permanent disorganization of child's personality. In this connection the experiments conducted by various psychologists on sensory deprivation reported in the book *Sensory Deprivation* (Solomon 1961) may be cited

The whole issue of adult-child dynamics in establishing a basis for the later learning process is the ability of the child to use the true adult as a source of information. In low SES families free adult time is greatly limited. Homes are vastly crowded, economic stress is chronic and the general educational level is very low. In addition to these, the adults are aware of the inadequacy of their education Therefore questions from children are not encouraged. Moreover, they are too preoccupied with the business of just living and surviving.

The language symbolic process plays an important role at all levels of learning. Language development evolves through the correct labelling of the environment. In this the use of appropriate words for relating, combining and recombining of the concrete and abstract components in describing, interpreting and communicating perceptions, experiences and ideational matter, become important,

Though Piaget has not stressed the importance of the language as an area sensitive to the impact of the multiplicity of the problem associated with the stimulus deprivation, Vygotsky (1962), Luria (1969) and others in the Moscow School of Psychology have stressed this aspect and language has been given the pride of place in their school curriculum from the pre-school level itself. *Children from low SES are definitely handicapped at the point of entry into the formal learning process.* These children, from the time they enter school, are exposed to assumptions about them derived from the experience with the middle class children, have few success experiences and much failures, generalized frustrations and consequent anxiety The results of various studies quoted earlier may be seen to fit in with this line of interpretation

The motivational and attitudinal factors may also be explained in terms of the stimuli from the social environment. This is best done by the application of incongruity-dissonance principle of Hebb and Hunt. Dissonance principle considers individual organism as an information processing system which operates like an error-actuated feedback. The error is derived from the discrepancy between receptor inputs of the present and the residues of the past experience which serve as the basis for anticipating the future. What is considered as motivation and attitude are the products of current sensory inputs interacting with residuals of earlier experience. The earlier experience residuals are thought of to gain sequential organization Grossly incongruous inputs disrupt this organization, while slight degrees of incongruity lend interest and are stimulating. What is seen as 'no motivation' and 'negative' attitudes in children from low SES are instances of new environmental encounters which are grossly incongruous with residuals of their prior experience in their home and community environment. Review of the studies of adolescent and adults (Shanmugam 1976) reveals serious adjustment problems of those belonging to low SES. Subjects belonging to low SES seem to be victims of more serious diseases like psychosis and they are more prone to antisocial behaviour

There are many possible reasons cited. Among them negative evaluation of those from low SES by the society which is decidedly middle-class-oriented may be cited as an important reason. The mass media, journals and novels portray the persons from low SES either problems or as comical characters. A second way is the process of designating them as poor and hence a problem. The special provision for backward and scheduled castes and tribes by itself places them in a special category, which brands them as less than equal Another important aspect of negative evaluation is the discrimination. Those from the low SES are treated differently at the main points of contact, at the shopping centres, police stations, hospitals and schools. It is a well-known fact that third degree methods are adopted by police only on people from low SES.

Children from low SES suffer from stimulus deprivation at home as has been mentioned earlier. To compensate for this, schools may be improved. But this may not be adequate. Developing hobby centres in the line of pioneer palaces in USSR may be thought of. Immediately existing mass media, particularly television, should be utilized to their maximum to this end. Psychologists with knowledge in the laws of learning and skill in the technique of persuasive communication are better equipped to look after this aspect. Recently, there has been some loud thinking about two types of schools to cater to the pupils of different levels of achievement, which in essence would mean pupils of different socio-economic status. Though this would in reality amount to rationalizing the existing state of affairs and would perpetuate the class differences for ever. Instead, enriching and strengthening non-formal education with the help of mass media, hobby centres and the like, advocated above and through the existing boys' clubs, strengthening them adequately will be more effective. Improving or ameliorating the conditions of children alone will not be effective. Parents should also be brought under the scheme of non-formal education through mass media.

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Repercussions of Early Malnutrition in Later Intellectual Development

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MALNUTRITION during infancy and early childhood is believed to have long-term repercussions on both physical growth and intellectual performance in later life. Studies carried out on experimental animals under controlled conditions have shown that even moderate malnutrition imposed at a time when the central nervous system is developing, if persistent enough, can interfere with neuronal division, adversely affect myelination, impair learning ability, and also lead to abnormal behaviour (Barnes, *et al* 1970, Chase, *et al* 1967, Dobbing and Widdowson 1965, Guthrie and Brown 1968, Howard and Granoff 1968, Novakova 1962). Extrapolation of these experimental data to man is always hazardous. Malnutrition during early childhood has been found to be associated with smaller head circumference, lower brain weights and altered biochemistry of the brain (Brown 1966, Brown, R.E 1965, Cordane, *et al.* 1963, Winick and Rosso 1969), but the functional significance of these neurochemical alterations is, as yet, far from clearly understood. Malnourished children have been found to perform poorly in intelligence tests and on this basis it has been held that protein calorie inadequacy during childhood can lead to irreversible impairment of mental function in later life (Cabak and Najdavic 1965, Champakam, *et al* 1968, Chase and Martin 1970, Cravioto, *et al.* 1966, Monckeberg 1968, Pollitt and Granoff 1967, Stoch and Smythe 1963, Yatkin and Mclaren 1970). Most earlier studies in the human situation have been of a cross-sectional nature and many of them retrospective. Some recent studies, however, are longitudinal, wherein the performance of malnourished children has been assessed over a period of time and changes in performance compared with those seen in normal children. Such studies may be expected to provide information as to whether or not, malnutrition in childhood leads to a permanent impairment in ability to learn in later life. The results of one such longitudinal study carried out at the National Institute of Nutrition, Hyderabad are reported here.

Nineteen children, eight boys and eleven girls, who had been admitted to the Nutrition Unit of the National Institute of Nutrition with classical signs of kwashiorkor and successfully treated for the disease in the hospital were investigated. Their ages at the time of admission ranged between 18 and 36 months. All the 19 children were followed up on three different occasions, once each 6, 11 and 13 years after they were discharged from the hospital. At each of these time points, physical growth and mental performance were evaluated. Physical growth was assessed by measuring heights and weights. Neurophysiological development was evaluated by their performance in tests which measure neurointegrative competence (Cravioto 1966). On the first occasion, a battery of specially developed tests to measure intelligence was used (Champakam, *et al* 1968). On the second and third occasions, Wechsler's performance test suitably modified to meet local conditions was used to determine intellectual performance. Among environmental factors known to influence mental function are age, sex, religion, caste, socio-economic status, family size, birth order, educational background of the parents, schooling and urban/rural locations. In order to make allowance for the effect of these variables, the performance of each index child was compared with that of two or three appropriately matched controls.

Physical Growth

The heights and weights of children on the first occasion of follow-up, when they were between 8 and 10 years of age, and increments in these measurements at subsequent time periods were observed. Mean heights and weights of the index and control groups of children were markedly different. Six years after rehabilitation, index boys were on the average 10 cm shorter, and index girls about 3 cm shorter than controls. This apparent difference between sexes regarding the extent of deficit from controls may, however, have no real meaning, since anthropometric measurement was not among factors which were matched between the index and control groups. This was so both in girls and boys. Thus, differences in heights seen at the time of the first examination, continued to exist throughout the period of study, there being no tendency for it to either increase or decrease. This trend was true of body weights as well. Over a period of 13 years after rehabilitation, therefore, the 'absolute growth' of index children was similar to that of the control group.

All eleven index girls had attained menarche—two when they were between 12 and 13 years old, five between 13 and 14 years of age and the other four between 14 and 15 years of age. This pattern was similar to that seen in the control group.

Intellectual Performance

The results of tests on neurointegrative competence show that the two groups differed markedly in their performance at the first point of study, the index children committing significantly greater number of mistakes in all the three tests—visual-kinaesthetic, visual-haptic and haptic-kinaesthetic. This was so of both errors of equivalence and errors of non-equivalence When tested five years later, the differences between the two groups had virtually disappeared After a further period of two years, none of the children in either groups committed any errors. The discriminatory capacity of this test is believed to be greatly reduced when children reach the age of 10 years (Birch and Lefford 1964). However, in our experience, even apparently normal children committed some mistakes beyond this age and the test was used until the children were 12-13 years of age. Data showed that by 13-14 years of age, the index children had caught up fully with the control group, it is likely that they had done so even earlier, as shown by the results obtained on a small number of children investigated during the intervening period.

Intelligence Tests

When tested at age between 8 and 9, the index group performed only half as well as did the control group in tests designed to measure intelligence. Eleven years after the children were rehabilitated, the mean scores in the Wechsler's tests' were 49.9 for index boys and 60.5 for control boys; for girls the scores were 35.7 and 50.0, respectively for the index and control groups. In two years' period that followed, control boys had improved their score by 17 5 points while the index boys had improved theirs by 22.9 points. Similarly, control group girls had improved their performance by 14 points and the index group by 18 points The absolute scores obtained by the index group were lower than that obtained by the control group at both points of time, but the differences in the increments in scores between the two groups were not significant except in the case of girls at age 13-14 years. Thus, the pattern of change in the performance of intelligence tests was similar to that seen in anthropometric measurements. The initial difference persisted, but the extent of increase in scores between two time points was essentially similar.

The poorer performance of girls as compared to boys needs comment All the boys continued to attend school throughout the period of study. In contrast, several girls left school for various reasons. Though the number of observations is small, it is significant that the mean score obtained by girls who dropped out of school was considerably lower (27.2) than that of girls who continued to attend school (44.6). The scores obtained by girls who continued to go to school very closely approximated to that obtained by boys. This finding strongly suggests that stimulation provided by formal schooling considerably improves the performance of index children, but had little effect on control children. The lack of improvement in normal children due to schooling may be ascribed perhaps to the better psychological environment at home from the very beginning.

Data also suggested that an episode of severe malnutrition during early childhood, which needed hospitalization, had not altered significantly the subsequent rate of either physical growth or mental development. It is, however, significant that differences which were initially present between the two groups, persisted even after a lapse of over 13 years. Since the gap that was found initially did not tend to close, it could be argued that malnutrition does, in fact, interfere with mental development and that this is of a permanent nature. On the other hand, since the increase in scores over a period of 13 years was similar between the two groups, it may also be argued that malnutrition had not left any permanent handicap

Even in poor rural communities, under apparently similar economic and environmental constraints, only a few children develop severe malnutrition, while a great majority escape with the mild and moderate forms. Among factors that may be responsible for this finding are the mother-child interaction and some maternal attributes (Srikantia and Sastry 1972). The level of intelligence of the mother, the attention she bestows on her child, her motivation and resourcefulness and the degree of her concern for her child's well-being, may be the key determinants in deciding the degree of malnutrition her child would suffer from

It has been found that both the knowledge and attitude of mothers whose children had suffered from severe malnutrition were distinctly different from those of mothers whose children did not have severe malnutrition, although they both belonged to the same broad socio-economic stratum. Similarly, the scores obtained by the two groups of mothers in the adult Wechsler's performance tests were clearly different, supporting the concept that children who had severe malnutrition, came from homes with particularly poor psychological background. This could influence the mental performance of the child, independent of malnutrition. Under these circumstances, it may be expected that once a child recovers from severe malnutrition, goes to school and is exposed to external stimuli, he may show considerable improvement in his intellectual performance. Data strongly supported this concept, particularly the observation that the performance of index girls who had attended school was significantly better than that of girls who had dropped out.

It is now being increasingly recognized that a child's ultimate intellectual status is the outcome of an interaction between a variety of environmental factors which include nutrition and psychological environment as important ones Intellectual performance of children, who once had suffered from an attack of severe protein calorie malnutrition in early childhood but were exposed to social stimulation in later years, was somewhat similar to that of children who had not experienced a similar episode of acute malnutrition.

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Development of Discrimination, Seriation and Numeration Abilities in Disadvantaged Children

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GREENFIELD (1966) reported that not more than 50 per cent of the unschooled bush children attained conservation by the age of 11-13 years. By the same age level urban and schooled bush children attained 100 per cent conservation. Goodnow (1969) reviewing several cross-cultural studies concluded that some tasks are more vulnerable than others to western schooling. The hardest of the tasks appears to be the conservation of number.

The present investigation was concerned with the study of differences, if any, between school-going and the non-school-going children in the development of discrimination, seriation and numeration skills, which are supposed to underlie the development of number concepts. Further it was also aimed at examining whether children hailing from low socio-economic status (SES) and culturally deprived or disadvantaged homes usually perform much more poorly than middle class children.

The population from which the subjects (Ss) for the investigation were drawn comprised children in the age-group of 4+ through 7+ years, who were not attending any school. For this purpose children from the slum areas and children belonging to labour class families were sampled. From each age level 72 children equally divided into boys and girls were selected. A similar number of Ss from each age level were selected from the school-going children to serve as a control group.

TESTS

The Ss thus selected were tested for discrimination, seriation and numeration skills employing Piaget type of tests. There were 12 tests for each function

The tests were given employing three types of materials : (a) Sticks—unidimensional; (b) Slats—bidimensional and (c) Blocks—three dimensional All the experimental materials were of wood painted orange. The sticks, slats and cubes were all size-graded, the smallest being 1″ long and largest being 5″ long, with ½″ increments from the smallest to the largest/longest. The slats were 1½″ broad and were uniformly 1/3″ thick The smallest slat was 1″ long and the largest slat was 5″ long. The cubes were also of similar dimensions, viz. the smallest being 1″ cube increasing by ½″ at each step to 5″ cube, which was the largest used. Thus there were 9 items of each type : sticks, slats and cubes.

Discrimination Tests

The sticks/slats/blocks were placed in a jumbled order (one type of materials at a time) on the table. The subject was asked to pick out the largest or the longest one (item 1). The next task was picking out the smallest (item 2). Items 3 and 4 consisted of presenting the same materials such that the smallest and the largest elements were camouflaged. The S was asked to pick out the largest (item 3) and the smallest (item 4).

The Ss were presented with the four tests using the different materials in a random order, i.e. some Ss were first tested with blocks, others with slats and yet others with sticks. Similarly, the tests were also randomized, i.e. some Ss were tested first for seriation, second for discrimination and third for numeration. There were 4+4+4=12 items in all and each correct response was given a credit of 2 points. For the seriation tests E placed the materials (sticks/slats/blocks) and asked the S to make a stairway. E demonstrated making a stairway and disarranged the elements. S was asked to reconstruct the stairway with all the elements If the child (S) failed, E gave 4 elements (item 1). Next S was given 7 elements (item 2) Testing was discontinued if the S failed with both 4 and 7 elements If S succeeded with 7 elements, 9 elements were given (item 3) The Ss who failed were not tested further E tested Ss who succeed by giving 5 elements picked at random to make a stairway (item 4 practised) Next Ss were given 5 elements also picked randomly and were asked to insert them into the 9 elements at appropriate places (item 4). The tests were repeated with the remaining other materials, blocks/slats/sticks.

Numeration Tests

The materials were arranged into a stairway. S was asked to count the number of the stairs (item 1). E pointed to the first stair and asked S "How many stairs does the doll have to climb to get on this stair?" E pointed to 2nd, 3rd...9th stair in succession, asking S to say how many stairs the doll had to climb to reach the stair concerned (item 2). E pointed to the 4th stair and asked "How many stairs must the doll climb to reach this stair". When the child answered, E pointed to the 7th stair and repeated the question (item 3). Next E disturbed the stairway and said, "If the stairway was together like it was before, how many stairs would the doll have to climb to reach this stair (4th) and this (7th) ? (item 4). For each correct response S was given 2 points and 1 point, if only one part was correct for items 3 and 4.

The experimental design employed was a factorial design with schooling (2) × tests (3) × materials (3) × age levels (4).

The data were analysed employing ANOVA (Table 1).

Table 1

ANOVA OF SCORES OF BOYS ON DISCRIMINATION, SERIATION AND NUMERATION TESTS WITH THREE KINDS OF MATERIALS, BLOCKS, SLATS AND STICKS, AT FOUR AGE LEVELS FOR SCHOOLED AND NON-SCOOLED Ss

Source of Variation	*SS*	*df*	*MSS*	*F*
A (Age)	2209.41	3	736 48	545.55**
B (Operations)	4667.02	2	2333.51	27 80**
C (Materials)	645 02	2	322.51	8.41**
D (Schooling)	2293 14	1	2293.14	63.76**
A B	503.67	6	83.94	62.18**
A C	230.27	6	38.37	28 42**
A D	107.88	3	35.96	26.63**
B C	546.64	4	141.16	20.52**
B D	1399 89	2	699 94	10 42**
C D	51.53	2	25 76	102 63**
A B C	82.63	12	6.88	5.29
A B D	403 20	6	67.20	49.77*
A C D	1 51	6	0 25	—
B C D	21.55	4	5 38	3.98*
A B C D	14.16	12	1.18	0.87NS
Error	3411 44	2520	1.35	
Total	16607 01	2591		

The F-ratio for the factors age, operations, materials and schooling were found significant beyond .01 level. The interaction AB, AC, AD, BD and CD were also significant and the second order interactions ABC, ABD and BCD were also significant. In keeping with the requirements for analysis of a mixed model, the F-tests were made employing appropriate interaction values as denominators. Thus MS b/MS ab, MS c MS bc, MS d/MS ad, MS bc/MS abc, MS bd/MS abd, MS cd/MS acd were all found to be significant beyond the .01 level. For the other mean squares, MS error was used as denominator. As a further check a/ac, a/ab, a/ac, a/ad, b/bc, b/bd, c/cd, c/ac, c/bc, a/ad, d/bd, d/cd, b/abc, b/bcd, c/bcd were also made and found significant.

Table 2

ANOVA OF SCORES ON GIRLS OF DISCRIMINATION, SERIATION AND NUMERATION TESTS WITH THREE KINDS OF MATERIALS, BLOCKS, SLATS AND STICKS, AT FOUR AGE LEVELS FOR SCHOOLED AND NON-SCHOOLED SS

Source of Variation	*SS*	*df*	*MSS*	*F*
A (Age)	2297 513	3	765.837	659 068**
B (Operations)	5964 130	2	2982.065	31 971**
C (Materials)	533.783	2	266.891	12.676**
D (Schooling)	2238.920	1	2238.920	1294 173**
A B	559 648	6	93.274	80 270**
A C	126.308	6	21.051	18 116**
A D	75 190	3	25 063	21.569**
B C	1070.983	4	267.745	27 171**
B D	1498.155	2	749 077	16.124**
C D	33.100	2	16.550	29.035**
A B C	118.258	12	9 854	8 480**
A B D	278.744	6	46 457	39 980**
A C D	3.425	6	0 570	—
B C D	28.698	4	7 162	6.163**
A B C D	23.195	12	1.932	1 662NS
Error	2928 330	2520	1.162	
Total	17776.330	2591		

The F-ratios were computed as in Table 1 and found to be significant beyond the .01 level.

The obtained results show significant differences between 4, 5, 6 and 7-year old children in their ability to discrimination, to seriate and to numerate. Individual t-tests for the difference between the means revealed that they were significantly different from one another beyond the 01 level. This finding corroborates Piaget's concepts conclusions

The results show that the discrimination items to be least difficult, the seriating items to be of intermediate level of difficulty and the numerating items to be most difficult. The results of the present study yielded F-ratios for the three tests significant beyond the .01 level. The means for the three tests were significantly different as shown by the t-test results.

In the present investigation the differences owing to perceptibility was tested by using materials varying in dimensionality. This was done to test whether dimensionality could affect successful or unsuccessful discrimination, seriation and numeration. The t-tests for the difference between means yielded values significant beyond the .01 level.

Table 3

MEANS FOR BOYS AND GIRLS AGE-WISE AND SCHOOLING-WISE FOR DISCRIMINATION TEST

	BOYS			GIRLS		
Age	*Non-School going*	*School-going*	*t*	*Non-School going*	*School-going*	*t*
4	20.27	20 83	0.56**	20 27	21 37	1.00*
5	21.66	22 38	0.72**	22 38	22.55	0.17
6	23.22	23 71	0.22	23·00	23.11	0.11
7	23.66	24.00	0 34	23.83	24 00	0 17

All t's significant beyond 01 level.

Table 4

MEANS FOR BOYS AND GIRLS AGE-WISE AND SCHOOLING-WISE FOR SERIATION TEST

	BOYS			GIRLS		
Age	*Non-School going*	*School-going*	*t*	*Non-School going*	*School-going*	*t*
4	9.72	16.94	7 22	8.61	16 94	3.33
5	14.41	20 22	5.81	16.13	21.38	5.25
6	16.97	23 72	6.75	19 25	23.66	4.41
7	22 83	23.94	1.11	22.66	24 00	1.34

Table 5

MEANS FOR BOYS AND GIRLS AGE-WISE AND SCHOOLING-WISE FOR NUMERATION TEST

	BOYS			GIRLS		
Age	*Non-School going*	*School-going*	*t*	*Non-School going*	*School-going*	*t*
4	3.72	8.63	4 91	2.22	10.75	8 53
5	6.16	17 33	11.17	3.50	14.94	11 44
6	8.91	23.33	15.42	5.88	17.21	11.37
7	10.55	23.77	13.22	9.00	23 86	13.86

The above results show that the differences between school-going and non-school-going groups were largest for numeration tests and least for discrimination tests

The obtained results were highly consistent, and point to the suggestion that the three operations--discrimination, seriation and numeration—were mastered at different age levels and depends on the kind of stimulations to which the children were exposed

It would be seen that at the four-year level difference between school and non-school-going Ss were significantly different. The Ss who had the advantage of going to school consistently performed better than those who had no opportunity to go to school. The F-tests also showed significant results for school-and non-schooling subjects The differences between the Ss at higher age levels become less significant, suggesting that at the early age of four years experience of schooling plays an important role in helping the Ss to acquire skills underlying discriminate operation But as the children grow older they seem to reach the stage when they are able to discriminate without much difficulty. This stage appears to be reached by children at or slightly before the five-year age level.

The school-going as well as the non-school-going groups appears to make great strides in their discrimination ability and are able to perform quite satisfactorily at the five-year level.

The difference between the groups—school-going and non-school-going—becomes marked with seriation tasks. There was not much evidence of improvement owing to practice. The difference between the groups persisted from 4 through 7 years. At the 6-year level the school-going groups were able to perform satisfactorily while the non-school-going groups continued to lag behind. The differences between the schooling and the non-schooling groups became remarkably striking with the numeration tasks. The non-school-going groups made very slow progress from 4 to 6 years and by the time they were 7 years old, they were not able to reach the score made by a 4-year old school-going child. The school-going subjects made very rapid progress from 4 to 7 years and were able to perform the numeration tasks quite satisfactorily This suggests the importance of schooling, which provides stimulation, which help better learning which is basic in all adaptive functioning.

The results obtained in this study exemplify the accommodation assimila-

Table 6

MEAN DIFFERENCES BETWEEN HIGH AND LOW SES SS SCORES AND T-VALUES ON DISCRIMINATION, SERIATION AND NUMERATION TESTS, AGE-WISE

Age	*SES Background*	*N*	*df*	*Means*	*t*	
			Discrimination			
4	High	48	47	20.58	0.11	NS
	Low	48	47	20.54		
5	High	48	47	22.08	—	NS
	Low	48	47	22.08		
6	High	48	47	23.45	0.89	NS
	Low	48	47	23.88		
7	High	48	47	23.95	0.38	NS
	Low	48	47	23.79		
			Seriation			
4	High	48	47	13.35	2.10	*
	Low	48	47	12.81		
5	High	48	47	18.33	6.66	**
	Low	48	47	16.22		
6	High	48	47	21.08	3.87	**
	Low	48	47	19.64		
7	High	48	47	23.33	0.09	NS
	Low	48	47	23.37		
			Numeration			
4	High	48	47	6.66	10.92	**
	Low	48	47	8.64		
5	High	48	47	10.60	5.10	**
	Low	48	47	9.54		
6	High	48	47	14.35	4.62	**
	Low	48	47	13.06		
7	High	48	47	16.70	2.42	*
	Low	48	47	15.79		

tion paradigm of Piaget. Children who are fortunate to be able to go to school are exposed to stimulations which require modification of the 'schema'. In this process, certain amount of assimilation of, and accommodation to, the environment becomes possible as well as necessary Children who do not go to school, obviously are denied those stimulations which benefit their counterparts in the deprived group, viz. the non-school-going group. Children who do not go to schools have obviously no stimulations which necessitate modification of acquired cognitive structures. For those Ss there is no possibility and even necessity for change in cognitive structures through assimilation-accommodation process.

The Ss performance was examined in terms of their SES background. They were classified employing the Socio-economic Rating Scale (Rao 1973). Ignoring the classification as per the experimental design, the discrimination, seriation and numeration scores of the Ss were examined. The obtained mean differences on discrimination were not significant for all the groups at the four age levels. With regard to seriation scores, the differences were signtificant for 4, 5 and 6-year age levels The differences at the 7-year age level were not signficant. For the numeration test scores, the mean differences at all the age levels 4 through 7, were all significant suggesting that socio-economic status of the family background, plays a very significant part in the cognitive development of the children The reason for this appears to be simple, in that the higher socio-economic home provides the kind of stimulations which are of value in the cognitive development of the children. A poor home on the other hand, obviously has no such facilities to provide to children Hence children hailing from better home backgrounds have the advantage of richer experiences and they have better conditions for cognitive development and concept acquisition.

The 'restricted' or 'elaborate' patterns of child rearing adopted by poor and middle class homes provide different opportunities and stimulations for cognitive growth Thus the SES status of home assumes a great significance in so far as it provides better and richer opportunities for intellectual stimulation and cognitive growths The results obtained show that so far as discrimination was concerned, the SES did not significantly affect the Ss' performance It could be pointed out that discrimination largely depends upon perceptual cues and socio-economic status would not materially affect this situation. On seriation and numerations functions, the Ss' from the two SES groups performed differently. Excepting for the 7-year age-groups, the differences for 4, 5 and 6 years age-groups were all significant. This was perhaps owing to the attainment of the necessary skills or cognitive structures fully by the Ss by the time they were 7 years old. With regard to numeration, the obtained results did not show marked differences from the above This should be explained as an unambiguous proof of the importance of richer learning experiences afforded by the higher SES homes.

The results corroborate the findings obtained in the first part of this study That deprivation, socio-economic or non-schooling, adversely affect cognitive development in young children is strongly suggested by the results obtained in this study.

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ble. Birch (1972) points out that by inhibiting the development of a primary process essential for cognitive growth, malnutrition interferes with the orderly development, experience and contributes to a sub-optimal level of intellectual functioning.

A well-fed child is happy, active and learns fast. On the other hand a poorly fed child is irritable, has no vitality and vigour, has less resistance to infection and learns less. The relationship between good nutrition and learning abilities has far-reaching implications. In order to achieve a fuller understanding of the effects of malnutrition, detailed prospective longitudinal studies are required. The procedure for this study undertaken to find out the relationship between the nutritional status and learning abilities of selected children are detailed below.

PROCEDURE

Ten children who had been treated for severe PCM when they were between 18 and 24 months and 12 children who were treated for mild form of PCM during the same age period were located and noted. Each index case was matched for sex, religion, socio-economic status, family size, locality, educational background of the parents with atleast one sibilng who had never been hospitalized for malnutrition. Because of the varying patterns of family composition, a sibling has been defined in this study as a child having the same biologic mother as the index patient and having shared a home residence with the index child for most of his life. Because of the selection criteria used, the siblings were older than the index patients.

Children who [were malnourished earlier were invariably children with birth order of four and above, while their siblings had birth order of second and third. They were evaluated for their learning abilities with the tests evolved. At the time of final assessment of academic performance, the earlier malnourished children were six years old, while their siblings were eight years old. Among the children who had been hospitalized for treatment of severe malnutrition during the second year of life, all the boys and girls selected reflected various syndromes of protein caloric malnutrition. A great majority of the children were slum-dwellers and had received six weeks of in-patient care on an average.

Since academic achievement is a measure of the level of competence attained as a result of learning, the marks obtained in tests and examination in various subjects were obtained from the concerned teachers. Apart from these, tests were formulated by the investigator to evaluate the achievement of the sample in the academic subjects. The syllabi for Standard I and II were the base for constructing the tests.

The tests for the children of Standard I were of verbal type, since they were unable to respond to the test items in written form. These tests included categories such as word completion, information enquiries, sentence completion, arithmetic, identification of pictures, matching cards, classification, picture completion, problem-solving and filling up the blanks.

The tests for the children of Standard II were of written type The tests for these children consisted of categories such as arithmetical reasoning, addition, subtraction, multiplication, filling up the blanks, and recall of meaning of the words, plurals and collective nouns. The test items were pretested for their suitability. The maximum score for the children of Standard I and II were 75 and 100, respectively.

Rapport was established initially with the selected children by visiting their homes after their discharge from the hospital. To start with, after collecting background information, anthropometric measurements were carried out

FINDINGS

The academic achievement of the selected children are discussed in terms of attendance in the school, performance in the school tests and examinations and achievement in the tests.

Attendance in the School

Among the 10 children who had severe attack of malnutrition, four dropped out within 61 days after enrolment, while two affected by mild PCM discontinued within a period of five months. The records of attendance indicated that malnutrition promotes dropping out. It can be a contributory factor to the high rates of absenteeism, dropouts and poor performance. The well-nourished children in the school had the highest attendance (90 per cent).

Performance in School Tests and Examinations

When the children who had/has episode of malnutrition are contrasted with their siblings, they are found to lag behind significantly in terms of academic performance. The previously malnourished children had secured on an average 17 to 23 points lower than their siblings, and 20 to 32 points than their classmates. The ravages of malnutrition appear to persist on the children who had the misfortune to have been affected by it.

Taking into consideration the age factor, class, and the syllabi, different academic achievement tests were evolved by the investigator for the index cases and their siblings and administered in the fourth year of the study when the previously malnourished children started attending the primary school.

The siblings of children affected by severe PCM and mild PCM had scored higher percentage of scores reflecting their better ability to learn than those affected by PCM in their second year of life. This finding gives a clue that learning is a function of nutritional status

It is interesting to note from the reports given by the teachers regarding the participation in extra-curricular activities, that formerly malnourished patients did poorer than their siblings. There is need for fuller and more systematic consideration of factors other than nutrition that influence the functional development of children.

Academic Achievement of Malnourished Children and their Siblings

Since the study was conducted for a period of four years, it was possible to compare the academic achievement of the malnourished children with those of their siblings, at the corresponding age periods. Such a comparison would facilitate assessing the impact of malnutrition at a specific age point on the academic achievement. The academic achievement of those malnourished earlier and their siblings in the corresponding chronological years revealed that there was a difference of 18 points between the malnourished and their siblings at the corresponding age period This confirms the finding of Venkatachalam (1975) that the consequences of malnutrition for those under the age of 36 months are not only retardation of physical growth but also similar effects on learning abilities. It may be said that it is not only general environmental deprivation but also factors which are closely related to the event of early malnutrition that might have contributed to further depression of academic learning.

Thus this study revealed that the school attendance and academic performance of those children malnourished earlier were poorer than their siblings. The comparison of the academic performance of the malnourished children with those of their siblings, at the corresponding age period has also revealed that the mean score in academic performance was significantly greater for the malnourished children than for their siblings.

RECOMMENDATIONS

Based on these findings, the following recommendations are made :

1. National food and nutrition policies must be established with the involvement of nutritionists and effective machinery set up from the highest level to the grass-root level for planning, implementing and evaluating these programmes The policies need to include :

a. definite provision for infant and child nutrition programmes,

b. criteria for proposed infant food products giving priority to the development of weaning foods using local food materials,

c. steps to make suitable nutritions foods available at low cost as widely as possible, to all the vulnerable groups

2. The existing food and nutrition intervention programmes must be enlarged to cover, on a continuing basis, as substantial part of the malnourished vulnerable groups.

3. Educational activities relevant to the needs of the community, aimed at the public, civic groups, pre-school and school children, should be intensified, particularly in the practical aspects of infant-feeding and nutrition with emphasis on breast-feeding and indigenous weaning foods. The mass media should be utilized fully to achieve these aims.

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Development of Science and Mathematics Concepts in Children

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THE PROCESS of development of science and mathematics concepts in children in the primary classes has been a topic of intensive study in recent years in different parts of the world It has been recognized that research into the development of science and mathematics concepts in children in the primary classes, especially those in rural and tribal areas, has significant implications for the development of science curricula, instructional materials and appropriate teaching strategies.

The investigations conducted by Jean Piaget and the conclusions that he has drawn from his studies have led to the recognition of the differences in the way in which a child thinks at each stage of his cognitive development. According to Piaget, cognitive development proceeds through the invariant functions of assimilation-accommodation resulting in adaptation. Assimilation refers to the process of incorporating new objects or experiences into pre-existing schemes or structures in order to incorporate the new experiences. The simultaneous processes of assimilation and accommodation bring about adaptation which in effect is learning for attainment of a new mental structure.

The cognitive development of a child depends upon certain factors. Prominent among them are: (a) maturation, (b) environmental experience, i.e. getting actually involved in certain stimulating situations, (c) social interaction—the adult peer/teacher-child relationship, and (d) the function of autoregulation through assimilation and accommodation—conflict or the presence of a problem that will stimulate the child to think. Piaget maintains that children develop their thinking abilities through their interaction with their environments and pass through various stages before reaching maturity in their thinking and development. He holds that there are four main stages in the cognitive development of the child : (i) sensory motor stage (up to 2 years), (ii) pre-operational stage (2 to 7 years), (iii) concrete operational stage (7 to 11, 12 years), and (iv) formal operational stage (above 12 years) All children pass though these stages of development invariably in the order described above, but the age at which any stage will be reached depends upon factors within the individual, i e. biological and psychological, and upon factors in the social and physical environment (Piaget 1966).

Another model of learning which has been used in studies on cognitive development as related to social and cultural environment is that of Bruner (1967) which is closely related to the views of Piaget. According to Bruner human being acquire three distinct but related modes of knowing, namely, the enactive, iconic and the symbolic. The development of these three modes depends upon the socio-cultural stimulation as well as on the extent to which children are encouraged to explore the similarities and the differences between each of the three modes. In the enactive stage the child processes information through his actions His notion of objects is based on what the objects do and what the child can do with them. The second stage of thinking is characterized by the use of imagery. Children begin to form concepts which are relatively free from their actions and situations. However, the surface qualities of objects still play an important part in the thinking and concept-formation. The symbolic stage is characterized by the use of symbols for ordering and structuring experiences At this stage language becomes an important instrument of thinking The type of environment (urban/rural/tribal), the language system and the value system of the culture in which the child grows determine the development of all the three modes of knowing as stated by Bruner His model leads towards specifying the nature of environmental factors necessary for the development of concepts and further thinking

Children may pass through the different stages of development at different rates although always in the same order. Learning and development, as mentioned earlier is accomplished through an interaction between cognitive factors and environmental factors which vary from country to country and even from region to region within a country. Generally the rural environment lacks the stimulating experiences that make children think. The social system in rural environment is mostly based on personal interaction and, therefore, channels of communication and network of relationship are very much limited. Technological development is least in the rural environment. As a result, the environment lacks the presence of problems that normally stimulate the child to think and operate at an abstract level. On the other hand, children growing up in an urban environment are exposed to a variety of problems that stimulate the children to think constantly and consistently. They have to make adjustments to a variety of impersonal relationships and different channels of communications. Therefore, for effective adaptation children learn to think in more abstract terms which facilitate their cognitive development.

As a result of these variations in environment there occurs a difference in timing of the acquisition of concepts, including science and mathematics concepts, by children. However, concepts are acquired in sequential hierarchies and the development of certain concepts at a particular stage lead to the acquisition of other concepts. The thinking process and the characteristics of thought at each stage of development provide an indication of the way in which each child learns and develops at a particular stage The importance of understanding more fully the process of learning and the development of concepts, especially science and mathematics concepts in children in different linguistic and socio-cultural groups, has been highlighted by experts working in the area of curriculum development in science and mathematics, as well as by psychologists working in the area of learning.

Athough much of research has been carried out in Europe and North America, and some in Africa and South-East Asia there have been few investigations into the development of sicence and mathematics concepts in Indian children, especially children from rural and tribal areas. The curriculum developers, textbook writers and teachers have gone about their work with very little knowledge of the intellectual development of the children for whom the materials they produce are intended. The present investigation into the development of science and mathematics concepts in urban and rural children at primary grades in India is an attempt at gathering empirical evidence which would contribute much in the development of curricula in science and mathematics at the primary education level, in devising instructional materials and in developing appropriate teaching strategies that are appropriate to the needs of Indian children, particularly those of the rural areas.

OBJECTIVES

The major objectives of the study were as follows .

i. To investigate the differences in the timing and ways of acquisition of certain basic concepts in science and mathematics between urban and rural children at the primary Classes (III to V) in the age-group 7-11 years

ii To determine the sequence of development of selected science and mathematics concepts in urban and rural children.

iii. To determine the possible relationship between environment (urban/rural) and development of science and mathematics concepts.

iv To determine the effect of environmental deprivation on the development of science and methematics concepts.

v. To develop strategies by which the results of the study may be used to guide curriculum development work in science and mathematics, especially in the areas of design and production of curriculum material (texts, aids and apparatus) and in the development of appropriate teaching methodology.

SAMPLE

The sample for the study consisted of school-going children in the age-group of 7-11 years and studying in Classes III, IV and V The sample consisted of 156 children from urban area (Delhi) and 159 children from rural area (Jalgaon District, Maharashtra). The details of the sample are given in Table 1 representing the two types of environments.

Table 1

SAMPLE FOR THE STUDY

Class	*URBAN*			*RURAL*		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*
III	27	27	54	33	21	54
IV	24	24	48	39	21	60
V	27	27	54	30	15	45
Total	78	78	156	102	57	159

The urban group consisted of children studying in government and government-aided schools. Most of the children belonged to middle class and upper middle class families. The children had a favourable environment for study both at school and at home The attitudes of parents towards learning were highly encouraging and they extended active support to their children in their learning pursuits. In contrast, the parents of the children in the rural group were mostly farmers and field workers The children often had to lend a helping hand to their parents' farming activities after school hours Most of the parents could not actively support their children in their learning pursuits. The children lacked a proper and favourable learning environment both at home as well in school.

TOOLS

As the main objective of study was to look closely at the development of science and mathematics concepts, certain basic concepts introduced for study in the primary classes were identified and selected for the study. The selected concepts were : (*i*) Number, (*ii*) Length, (*iii*) Area, (*iv*) Volume, (*v*) Weight, (*vi*) Force, and (*vii*) Energy. Conservation problems based on Piagetian clinical methods were developed on each concept. However, the problems were refined and adapted to suit the conditions of Indian children

While developing experiments/tasks the psychological principles underlying the development of concepts were taken into cosideration According to Elkind (1968) the notion of concept is based on one of the two basic assumptions. Either one takes into account the differences between the objects, for example, between a cow and a horse, or one recognizes the variability within the things while ignoring the variability across things. For example, water and ice have the same composition but they vary in states, water being in liquid state and ice being in solid state Piaget's notion of concept is based on the second assumption Taking into account this fact, conservation tasks on each concept were developed to test the child's understanding of the real and apparent properties of an object or a situation, i.e. what things look like after a change in shape, size, configuration or alignment and what they actually are. For example, in the conservation of weight experiment, two balls containing the same amount of plasticine are shown to the child. When he is convinced that both have same weight since they have the same amount of plasticine, one of them is elongated into a cylindrical shape and the child is asked whether they have the same weight or not. The child who responds correctly by saying that the spherical and the cylindrical structures of plasticine have the same weight has distinguished between the real and the apparent variation thus showing the conservation of the concept. Piaget feels that this understanding of the real and the apparent is most fundamental to the development of concepts as well as for intellectual development. He considers conservation as a necessary condition of all experience and reasoning and for all rational activity.

A brief outline of the tasks developed on each concept is given below.

(*i*) *Conservation of Number*: Would the blocks (cubes) be as many as before when their arrangement is changed from a straight line to (*a*) a longer line, (*b*) a shorter line, and (*c*) two lines, one above other, consisting of equal blocks ?

(*ii*) *Conservation of Length* : Would the length of two sticks of equal length kept paralleled and ends aligned be of equal length as before when their arrangement is changed (*a*) by moving one towards right, (*b*) by keeping them in the form of a pyramid by joining the upper edge, (*c*) by arranging them in the shape of 'L' and (*d*) by arranging them to form the shape of 'T' ?'

(*iii*) *Conservation of Area* : Would the amount of grass in two fields of equal area remain equal for two cows when (*a*) only one house block is kept on each of the fields, (*b*) when eight house blocks are kept on each of the fields, (*c*) when the house blocks in one field is kept undisturbed but in other the blocks are kept scattered, bunched together in different lines, etc ?

(*iv*) *Conservation of Volume* : Would the amount of water kept in two beakers in equal volume remain the same if (*a*) two blocks, one of 2″×3″×2″ and the other 2″×2″×3″ are immersed in water, and (*b*) two blocks of 2″×3″×2″ and 1″×2″×6″, respectively, are immersed in water kept in each of the beakers ?

(*v*) *Conservation of Weight* . Would the weight of a plasticine ball change after its shape is changed into (*a*) a cylinder, (*b*) a flattened object, and (*c*) six small balls ?

(*vi*) *Conservation of Force* : Would a light object kept at the mean position of a swinging pendulum ball move the more/less distance (*a*) when the pendulum is released from a higher point than the original and allowed to hit the object, and (*b*) when the pendulum is released from a lower point than the initial point and allowed to hit the object ?

(*vii*) *Conservation of Energy* Would a ball initially kept at the mid-point on an inclined plane move more/less distance after leaving the base of the plane when (*a*) it is released from a point higher than the mid-point of the inclined plane, and (*b*) when it is released from a point lower than the mid-point of the inclined plane ?

PROCEDURE

Each of the tasks was administered individually to each of the subjects. Each session was scheduled to last less than 30 minutes in order to avoid fatigue in the child. In all the testing situations the experimenter normally sat across a small table from the child, set up the experiment and asked the child to perform a specific task, explained the transformation of objects or situations before him and asked questions on the transformations. The experimenter established good rapport with the child and always tried to converse with him in his own language and at his level of understanding. The experimenter had to ask two types of questions to the child. One was pertaining to establishing identity, for example : "Do you think they are equal or not ?" and the other pertaining to the reasoning of his earlier answer, for example, "Why do you think so or how do you know?" In the former case the child had to answer only "yes" or "no ', whereas in the later case the child had to give reasons for his answer to the first question. He had to give reasons why he said "yes" or "no". The correct answer to the judgement question scored one mark. The total score of the explanation question was two. If the child could give correct reasons and explanation he was given two marks, for partially correct responses he was given one mark and for wrong responses the child was given zero/score. In other words the maximum score on answers to questions related to each of the transformations on each of the tasks was three and the minimum zero. Therefore, if the task had two transformations the total score would be six, if a task had three transformations the maximum possible score would be 9, and if the task had four transformations the maximum score would be 12, and so on.

A child who scored 66 6 per cent and above on a task was considered as a conserver of the concept, a child who scored between 33.3 and 66 5 per cent was considered as transitional and the child who scored less than 33.3 per cent on a task was considered as a non-conserver of the concept. The three stages of development, thus, were identified as non-conserver, transitional and conserver

TRENDS AND INDICATIONS

The following tables give the percentage of children in each grade group falling in the three stages of development (stage I non-conservers, Stage II : transitional, stage III : conservers) with regard to each of the seven concepts selected for the study.

The following trends and indications are obtained from the data presented in the tables showing percentage of children in each grade falling in the three stages of development.

(i) *Grade and Age :* The data indicate that the grades at which the children study tend to have a good relation with the three stages of performance. As children move form one grade to another higher grade, the better is their performance on each of the tasks designed to study the development of concepts. It also indicates that the higher the age of the students better their performance on each of the tasks as the age of Class IV students was higher than Class III children and the age of Class V children was higher than the age of those of Class IV children.

(ii) *Effect of Environment :* The urban children of all classes performed better than the rural children of their respective

Table 2

PERCENTAGE OF CHILDERN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF NUMBER

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	9.3	24.0	66.7	54	51.9	25.9	22.2
IV	48	4.1	25.5	83.3	60	20.0	30.0	50.0
V	54	3.9	5.6	90.7	45	11.1	17.7	71.2

Table 3

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF LENGTH

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	7.4	37.0	55.6	54	25.9	33.3	40.7
IV	48	4.2	37.5	58.3	60	26.6	23.3	50.0
V	54	3.7	18.5	77.8	45	6.6	33.3	60.0

Table 4

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF AREA

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	9.3	33.3	57.4	54	27.8	33.3	38.9
IV	48	10.4	31.3	58.3	60	28.3	25.0	46.7
V	54	1.9	22.2	75.9	45	6.6	37.8	55.6

Table 5

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF VOLUME

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	40.8	35.2	24.0	54	40.7	42.6	16.7
IV	48	22.9	25.0	52.1	60	16.6	51.7	31.7
V	54	13.0	22.2	64.8	45	6.6	35.6	57.8

Table 6

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF WEIGHT

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	13.0	22.2	64.8	54	18.5	31.5	50.0
IV	48	6.25	20.8	72.9	60	21.7	16.7	61.6
V	54	1.9	11.1	87.0	45	4.5	13.3	82.2

Table 7

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF FORCE

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	25.0	32.5	42.6	54	51.8	31.5	16.7
IV	48	29.1	16.7	54.2	60	48.3	23.3	28.3
V	54	13.0	22.2	64.8	45	22.2	31.3	46.7

Table 8

PERCENTAGE OF CHILDREN IN EACH GRADE GROUP FALLING IN THE THREE STAGES OF DEVELOPMENT

CONCEPT OF ENERGY

	URBAN				*RURAL*			
Class	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*	*Total Number of Children*	*Stage I*	*Stage II*	*Stage III*
III	54	35.2	24.1	40.7	54	66.6	31.5	1.9
IV	48	33.3	29.2	37.5	60	50.0	36.7	13.3
V	54	14.8	40.8	44.4	45	17.8	44.4	37.8

classes on all the tasks designed to study the development of concepts. This better performance of the urban group may be attributed primarily to the better educational and learning experience they have in schools and at home

(iii) Good Performance in the Weight Task by Rural Children : The performance of the rural children is comparable to that of the urban children on the conservation of weight test, particularly in Class V. This good performance on the weight task by the rural children can be attributed to the rural children's experience in measuring and weighing farm produce at their farms and at home.

(*iv*) *Difficulty of the Tasks* : From the children's performance the tasks can be grouped according to difficulty. The easiest of all the concepts was the concept of number for the urban group while for the rural group it was the concept of weight. The most difficult one was the concept of energy.

(v) *Poor Performance in the Energy Task :* In the energy task, both urban and rural children showed poor performance. The percentage of conservers in both urban and rural classes were less than 50 per cent indicating that this concept may be taught only in higher grades.

IMPLICATIONS

What is the significance of studies on the development of science and mathematics concepts in children at primary classes? The studies would provide enough empirical evidence which would focus on the need to have a reassessment of the teaching strategies in relation to the way children's thinking develop as they grow older and older. In this context it may be worth-while if one tries to seek answers to the following questions related to the teaching-learning process.

- i. Do teachers provide for appropriate use of concrete materials in the course of their teaching?
- ii. Do teachers provide for a stimulating learning environment to allow children to make inquiries on various phenomena occurring around them?
- iii. Do teachers try to explore the children's thinking process while seeking answers to the questions they put to the children while teaching?
- iv. Do teachers provide for sufficient opportunities for exchanging viewpoints needed for the development of logical thinking in children?
- v. Do teachers approach the teaching-learning problems as they are perceived by the children rather than as they are perceived by the teacher?
- vi. Do schools provide a wholesome emotional and social climate in which children can develop and learn to adapt themselves to the varied conditions so that they could attain maximum intellectual development?

A long-range investigation into the development of science and mathematics concepts in children should be invaluable in designing curricula in sicence and mathematics and in developing instructional materials that are truly adapted to the needs of Indian children, particularly those needs which have their origin in the child's socio-economic background. Further, it has been generally accepted, though not supported by empirical evidence, that the discovery method of teaching a particular concept is equally well-applicable to the learning of all concepts and to all children, whatever their background. Certainly, in India, where varied and diverse environmental conditions exist, these are yet to be established. In this context we may raise the following questions :

- *i.* Are the different concepts in science and mathematics syllabus placed according to the level of cognitive development of the children and arranged in correct sequence?
- *ii.* Do we know whether the children are ready in terms of development for learning a particular concept included for study in the syllabus?

iii. Do we plan learning experiences for children on the basis of their prior knowledge and level of development ?

iv. While developing curriculum do we take into consideration what the children can do and cannot do at a particular level of their intellectual development ?

v. Since conservation is necessary for all rational activities what kind of learning experiences should be incorporated into the curriculum, especially taking into consideration the differences in learning environment ?

iv How do we provide for experiences that would facilitate the development of skills in classification, reversibility and compensation ?

vii. Can we accelerate the process of development of concepts in children ?

viii. Do we have adequate knowledge about the thinking process of children so that we may plan the curriculum in terms of how children think ?

ix Can we develop curricula or instructional materials that would provide for varying levels of development, maturity and experiences of the children in different types of environment ?

x. Can we develop a training programme for teachers which will integrate the basic psychological findings related to the process of cognitive development of children with the teaching of science and mathematics concepts ?

At present, do we have enough empirical evidence which may provide answers to some of the questions raised above ? Is there a need for undertaking more long-range investigations into the development of science and mathematics concepts ? If so, what are the most important variables which need to be investigated into and what is the extent to which the study needs to be replicated in different types of environment before the findings of the study can be generalized ? □□

Effect of Environmental Differences on Concept Learning in Early Years

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THE specifics of the environment as determined by the availability of resources contribute to the quality of the child's contact and content of his experiences. That it is the particular intensity and magnitude of experiences available to the child which account for obtained differences in the privileged and under-privileged child has been borne out by the findings of the present study.

PROCEDURE

Sample

The study was conducted on three age-groups 6+, 9+ and 12+. The sample was drawn from Delhi area and was taken from three schools representing three different types of environments. It consisted of (i) an urban advantaged group, (ii) an urban disadvantaged group and (iii) a rural disadvantaged group. A public school representing higher socio-economic strata constituted the urban advantaged group. The parents of these children are professionals, executives, administrators, and business magnets. The school is prestigious one run on public school lines providing a rich curriculum. The urban disadvantaged group came from city corporation schools. The parents of these children belong to white collar jobs Most of them are holding government jobs as clerks and technicians. Some of them are petty shopkeepers. Parents of the rural disadvantaged group are farmers and labourers working in the fields and holding jobs in government offices as peons, etc They represented the lower socio-economic strata. A total of 742 children were tested out of which 206 belonged to the urban advantaged group, 273 to the urban disadvantaged group and 263 to the rural disadvantaged group.

Material

Four Piaget type tasks were adapted in Hindi to study the concept of speed.

Results

Table 1 gives the perecentage of conservers at three age levels for different types of schools for the test for speed as a whole.

Table 1

PERCENTAGE OF CONSERVERS

Age	*Public school*	*Urban corporation school*	*Rural corporation school*
6+	0.00	0.00	0.00
9+	28.07	12.15	3.92
12+	71.26	21.20	7.84

The results indicate that at age 6+ there are no conservers in any of the schools They seem to start at the same level of conceptual development. The number of conservers increased with age for all the schools but the increase is maximum for the public school children. By the time they are 12-year old, approximately 72 per cent of public school children start conserving as against 21 per cent of urban and 7.84 per cent of the rural disadvantaged children.

In terms of rate of development between ages the figures are revealing (Table 2).

Table 2

RATE OF INCREASE FOR DIFFERENT TYPES OF SCHOOLS

School	*Development between ages*	
	6 to 9	*9 to 12*
	%	%
Public	18.07	43.19
Corporation urban	12.15	9.05
Corporation rural	3.92	3.92

The figures in Table 2 indicate that public school children not only show higger rate of development as compared to the other two schools, but between 9 to 12 development shows acceleration for advanced than other two types of schools as evident from the increase in the percentage of conservers from age 9+. Corporation urban children with advancing age show slowing down in development. Rural children show a constant but slowest pace of development as compared to the other children. Hence, as the age advances, the gap between the public school and the other two schools widens.

Table 3 gives the comparative distribution of scores on draw-a-man test agewise

Results in Table 3 indicate an increasing trend in the operational tasks as well as the intelligence test over the ages in all the schools But whereas the gap between the schools on the whole tend to decrease where the performance test is concerned, the gap between the operational task tends to increase.

Content analysis was done on subject's responses. The trend as seen is given in Table 4

Table 4 shows that the rural children are one stage behind the public school children and half a stage behind the corporation urban children Rural children not only show time-lag from one stage to another but they seem to be stuck at a plateau, whereas corporation urban school children start showing a movement onward towards an operational stage. Hence, not only there is an initial gap but the gap seems to be widening with age for rural children. Less advantaged groups at earlier ages give large number of primitive responses falling under the broad category of inadequate responses indicating that these children are still functioning at the pre-operational level. The results indicate different rates of growth for three groups of children.

Table 3

MEAN SCORE ON DARW-A-MAN TEST

	6+	9+	21+
Public school	27 40	37 50	38 81
Corpn. urban school	21 73	31.36	36.15
Corpn. rural school	13 66	26 50	28.43

Table 4

STAGES OF DEVELOPMENT FOR THE CONCEPT OF SPEED AMONG DIFFERENT GROUPS

Age	6+				9+				12+			
Piagetian tasks to test conservation of speed	1	2	3	4	1	2	3	4	1	2	3	4
Urban advantaged group	I	I	—	—	0	0	0	—	0	0	0	0
Urban disadvantaged group	—	—	—	—	I	I	I	I	0	0	I	I
Rural disadvantaged group	—	—	—	—	—	I	I	I	I	I	I	I

I—Intuitive response, 0—Operational response

1. Open Track
2 Tunnel Experiment
3. One straight are sinuous path
4. Concentric Circles

Correlations were calculated between intelligence and the scores on the concept of speed The figures given in Table 5 were obtained.

Table 5

CORRELATION BETWEEN SCORES ON CONCEPT OF SPEED AND DRAW-A-MAN TEST

Age+	Public school		Corporation		Corporation	
			Urban	School	Rural	School
	r	p	r	p	r	p
6+	0 200	<.05	0.227	< 176	.76	NS
9+	0.360	< 07	0.330	<.01	.318	<.05
12+	0.331	< 01	0 375	< 01	.158	NS

The results in Table 5 show high correlation at all age levels for public and corporation urban school children. The picture is different for corporation rural school children. It is significantly related at age 9+ only but again there seems to be regression at age 12+. This result is in congruence with those obtained in Table 4. There is no wonder that rural children show no development at this age level in cognitive development and show a plateau

When correlations were calculated separately between father's and mother's education, income and occupation and scores on the concept of speed, it was found that it was mainly father's education for the public school only that showed significant relationship at ages 9+ This is perhaps understandable, because it is in the public school that the differentiating levels from highly educated to not so highly educated were available, which is not the case of other schools

ENVIRONMENTAL DIFFERENCES

As mentioned earlier, in general, in our study environment seems to make difference regarding the age at which children succeed at Piagetian tasks. The children from poor quality schools and low socio-economic status though in the urban areas, reach operational stage at a much later age Rural children do not reach operational level at all even at 12+. Though the development of the fundamental operations follow the same pattern, regardless of the type and amount of schooling the child has received, the level at which a child will ultimately reach depends upon the type of environment in which he functions.

This study also shows that the rate of cognitive development in the three Indian samples studied differs. However, very little is known about the reasons for differences, and as yet, few attempts have been made to find out whether stimulation by the environment in general and schooling in particular affect only the speed or also the course of development.

Our results indicate that it is the urban children whether they belong to public school (higher socio-economic status group) or corporation urban school (lower socio-economic status group) who show a definite and significant correlational trend at all the ages under investigation between intelligence and cognitive development. The same type of definite trend is not evident in the rural children. Since all the groups are drawn from school-going population this seems to show that perhaps urbanization and quality of schooling as an influence has a definite role to play for achieving success on the performance tests and conservation tasks. Positive trend, if any, seen in the later group may be attributed to the peripheral affects of urbanization due to the proximity to the capital city. The village from which our sample was taken is 17 miles from the outskirts of the city. But the marginal effects of urbanization still reach this village. It will be interesting to find out if such trend will still be seen in a sample drawn from the interior and unschooled children.

Further, it is interesting to note that within the two types of urban schools studied the differences on the intelligence scores tend to diminish but the differences on the conservation scores tend to increase with increase in age. We find differences both on the performance test and conservation tasks in the two urban and one rural samples studied, whereas rural sample shows no particular improvement on the performance test and less on conservation tasks, which seem to indicate that the differences are not genetic but environmental Our conclusion is supported by the study of McDonald, *et al.* (1974) who conducted a study on approximately 225 3-5 years old children to test Jensen's (1969) four hypotheses relating socio-economic level and certain types of concept learning. The Ss were administered sub-tests, identified as corresponding to Jensen's two levels of cognitive functioning, of the Illinois test of Psycho-linguistic Abilities. Results show that tasks reflecting both level I (associative) and level II (cognitive) abilities were performed with more accuracy by pre-school children identified in the upper socio-economic status (SES) level : this performance remained the same even after the variables of IQ was controlled by covariance for the SES levels. It is suggeted that the results may reflect a general state of cognitive deprivation for children in the lower SES level as opposed to a specific level II deficit.

It is possible that the achievement on the performance test has high relationship with the existing type of educational system with concern only for the end product and with achievement orientation Increase in the differences on the conservation tests possibly are also indicative of the basic qualitative differences in the type of schooling, the public school having qualitative superior schooling as compared to the corporation urban school

The effect of schooling has been brought out by a study by Sinha (1976), which supports our contention that not only schooling but the quality of schooling also is an important factor for cognitive development.

Sinha (1976) in an Indian study found that the disadvantages due to socio-cultural status of belonging to scheduled castes and inferior quality of schooling had a deterimental influence on the development of the two perceptual skills under study. Though caste status was a significant variable, its influence was comparatively less perceptible on scheduled caste children from superior schools. The quality of schooling that the child received was a powerful factor, and seemed to exercise a kind of levelling influence in the sense that it tended to reduce the performance differentials of the two caste-groups.

It may be concluded from the above evidence that urbanization is more conducive for cognitive development More technologically advanced a group, better it will perform. Schooling seems to be important for achievement on performance test and quality of schooling potent for success of operational tests.

Father's education has been found to be highly correlated with cognitive development at 9+ and 12+ for high SES group Socio-economic environment at home may be another factor leading to the cognitive enhancement of the public school children. Bergman (1973) administered six subjects from a Swedish IQ test to 815 nine-year olds. The Ss completed the test again three years later Parental education was categorized at four levels and related to the verbal comprehension, inductive, spatial and general intelligence scores obtained by Ss. The Ss from more educated homes tended to have larger positive change than Ss from less educated backgrounds.

A lower performance on Piagetian tasks for low socio-economic class European children is reported by Peluffo (1967), Wei (1966), Vernon (1960) and De Lacey (1970 a, b). In the last study 10 to 20 per cent of low socio-economic Australian Europeans had not reached concrete operational thinking (classification) at age 12. Our results are in congruence with other studies. The public school children belong to parents who belong to the educated or highly educated class They are professionals, administrators and business executives, etc. Hence, these children have all the advantages which go with super education, income and occupation of the parents

Parents will be less restrictive and more democratic. Children will be allowed more initiative Availability of material benefits in the from of range of toys, books, magazines and excursions, etc. will be far more for these children leading to a wide variety of experiences. Level of interaction with the parents and the language used will be of higher order.

If we compare them with the parents of low middle income group from which corporation urban school children were drawn, the average education of parents comes to about 10 classes, children of these parents are allowed less initiative and obedience to authority is encouraged leading to lessening of curiosity and independence. Shortage of living and play space and lack of toys and books, all springing from limited resources lead to less manipulative activities and experiences. Hence there is no surprise that these children show retardation in cognitive processes.

According to Piaget (e g. 1966, 1968), four main factors are interacting in enabling the child to acquire progressively more complex structures of thought : (i) maturation, (ii) equilibration or autoregulation, (iii) general socialization and (iv) educational and cultural transmission Piaget himself, contary to the opinion of some, does not believe in a complete determination of cognitive development by biological factors (maturation). Piaget claims that logic becomes a priori] (Piaget, 1960, p 256), but only through a continuous process of equilibration.

Berry and Dasen (1974) think of two specific factors to be very influential in building up operational structures. These are : (*a*) educational activities of adults, (*b*) language itself, as a crystallization of syntax, and semantics which in their general forms involve a logic.

It will be interesting to take note of Bruner's (1967 a) model also. It is closely related to that of Piaget's and follows parallel line of thought as stated above. The development of his three modes of representation depend upon three elements of culture-type of environment (rural/urban), language systems and value systems (religion, myths, convention) When Piaget and Bruner's classifications along with that of Berry and Dasen two specific factors are considered together ; one thing is brought out clearly that environmental, educational and cultural transmissions are thought to be of prime importance. Language being an important vehicle of cultural transmission is of significant value To present author's mind Bruner's classification along with Piaget's would be more adequate if we we consider the degree and complexity of development where the first two are concerned

A systematic time-lag of two to three years is reported in illiterate rural children (Mohsoni, 1966) in Lebanese school children on conservation of Liquid and Number (1971a), and a similar difference in the rhythm of development was obtained by Bovet (1968, 1971, 1973) on conservation of length in illiterate Algerian subjects, whereas the time-lag was found to be much great for speed/time concepts

Mohsoni (1966) in his study noticed the astounding lack of activity of the young country children who do not go to school and who have no toys, except stones or sticks, and who show a constant passivity and apathy. Thus one finds at the same time lack of the three factors (equilibration of actions, general interpersonal interaction and cultural and educational transmission) since these children are illiterate

Another study which may be of special interest to us is Ghuman (1975) which amply brings out the environmental, cultural and attitudinal differences. He made a cross-cultural study of 50 English, 50 British Punjabi and 40 indigenous Punjabi of ages 9 to 9+ and 11+. The later two are from the same ethinic background The main purpose of this research was to make a comparative study of the thinking processes of children. For this a battery of tests consisting of conservation tasks as well as more formal tests like WISC Block Design, Vygotsky Blocks, the Coloured Progressive Matrices, etc. were given. The inference drawn from the results is that the British Punjabis do not differ significantly at .05 level in their basic thinking processes, scholastic and attitude orientation from the English group, but are significantly different from the indigenous Punjabi group.

He finds that indigenous Punjabi boys were being influenced more by the practical rather than the logical considerations of the problems. The genetic explanation is not tenable as the Punjabi boys who belonged to the same ethnic group performed just as well as the indigenous English boys. Hence, the possible causes have to be looked into the socio-cultural and educational factors.

Ghuman evaluated the impact of formal schooling on the intellectual development of indigenous Punjabi boys. He found that the performance of the senior Punjabi boys, who have been in schools far at least three and a half years, falls far short of the performance of even the Junior British Punjabi boys. This led him to conclude that the education which these children received must be of very poor quality in terms of the objectives of his enquiry.

It is interesting to note that Greenfield (1966), Hendrikz (1966), Prince (1968a), Pindard, *et al.* (1969), and Chong-Jen (1973) found that schooling was one of the principal cultural influences on operational development.

Formal schooling, according to Greenfield and Bruner (1966) can provide children with opportunity to learn about the world in a non-action context, and such learning promotes good structuring of experience. For example, the use of written language in schools forces the children to plan and structure their thoughts prior to writing and the written communication has to be understood without concrete cues. Furthermore, there is a contingent dialogue between the teacher and the pupils which helps to see contradictions between "what things look like and what they really are".

Furby (1971) proposes a matrix of interaction between schooling, urbanization, and Westernization, the various combinations of which could produce predictable results.

One of the most important causes accounting for the differences in public, corporation urban and corporation rural schools, performances in the light of the above study can be partially explained by the differences in the quality of schooling. Schools lack teaching aids and teaching in most of the corporation schools especially in rural schools is that of drill types and mechanistic. There is little opportunity for children to explore, manipulate and make things for themselves. In case the schools possess some apparatus, they are hardly used because of the inefficiency of teachers or fear of explanation on loss. As a consequence, schools fail to provide the necessary experiences and intellectual stimulation which are essential for the development of higher mental processess, In brief our urban and particularly rural sample perform poorly because of the lack of perceptual-kinaesthetic experiences and poor use of language.

The second important factor is that caused by the differences inherent in the nature of rural and urban environments. By and large rural environments are simple: their social systems are based on personal interaction. There is limited access to technology. As a result there are relatively few demands made upon children to operate at an abstract level. In contrast, children growing up in an urban environment have to make adjustments to a complexity of impersonal relationships and a network of communications. Hence, for effective adaptation children learn to think in more abstract terms. Language helps a learner to codify and structure his experience and thus aids the learner to develop an abstract style of thinking. Furthermore, language can become an instrument for the exploration of physical and social experiences.

The third major factor leading to the differences is that major value orientation of the Indian and more so of rural community is conformistic. Elders and those in authority have the last word and their judgements, pronouncements and views on nature, society, religion and social events are sacrosanct. This type of training is not conducive, according to Witkin (1966), to analytical and independent thinking. Individualized perceptions important to the growth of an abstract and analytical style of thinking are lacking. Ghuman's findings indicate indigenous Punjabi boys to be subdued in their attitudes and concrete, global and synthetic in their cognitive style.

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Educational Approach to a Deprived Child

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WITH increasing population in India today, children and youth form a majority and so the destiny of the nation depends as never before on their health and education. We all know that the challenge to protect and educate the children will remain unfulfilled for many years to come, hence we could do more to meet the burdens by checking all our programmes to see to what extent they bring the maximum resources to bear on the health and education of a nation's children and youth This challenge is not merely for the government. Planning for children and youth is a shared responsibility, between government and non-governmental institutions, local communities and individual families. Parents and grand-parents, looking at their own progeny, can see in them a microcosm of the nation's most precious assets All of us can share in discussing how best to give these, the majority of our young and future citizens, adequate health and diet, schooling and usable skills and last but most important an all-round safety and security.

Education and National Development

Education in India is inescapably linked with national development. 'Development' means economic growth It also means change in the structure of economy; adopting and adapting the way of modern science and technology; searching and seeking, being prone to innovation and experimentation, developing intellectual flexibility and creativity, revising, discarding and/or adapting traditional customs and accepted hypothesis; that all these causes and consequences of change must be placed firmly within the framework of universal values and their particular national and local expression. In development, 'growth' and 'change' must take place together as development is, in the end, a form of humanism, for its aim is and should be service to man. It is an expression of the wholeness of man, of man in his totality, serving his material needs of food, clothing shelter and embodying his moral demands for peace, compassion and charity. Education serves to achieve the above attributes of development and making them a reality. But all education does not contribute to development. Education has advanced undoubtedly but only in quantitative terms, i.e. number of admissions, number of teachers trained, increase in the number of schools and universities. All this offers no basis for complacency; educational road ahead is still very long and the climb steep.

Inequalities of Educational Opportunities

There are serious inequalities of educational opportunities within the country at state, district and block levels. Then another inequality arises when it comes to sex; girls enrolled are very much less than boys, and it even becomes more marked in upper grades. Then the inequality is noted among urban and rural 'and groups like scheduled tribes and scheduled castes. Hence the most important and real question to solve the inequalities arises : Is the education offered in India today, that which the country needs? We can very emphatically and truely say "No". For the education imparted to our young is largely unrelated to life and there is a wide gulf between its contents and purposes, and the concerns of national development.

The Indian educational system will continue to make its low contribution to national development unless we bring about a change in the system. It must be related to productivity, and it must strengthen social and national integration, consolidate democracy as a form of government and help the country to adopt it as a way of life, and strive to build character by cultivating social, moral and spiritual values These objects, unless translated into educational programmes and structures, curricula and methods, will mean that the education system in India will limp along slowly and at a slow rate There is not only a major gap in our educational system, but this finds its way into our way of life and is evident in a wide social gap between the schools and homes.

Work-oriented Education

Everyone, specially parents, will agree that today's education is city-oriented and geared more to produce merely clerks. Children are first over loaded with books and homework, and the subjects which have very little importance in their life, since they are unrelated to their lives or interests. Present education does not encourage children to take initiative, make efforts or think. It neither produces integrity of character nor capability and ability to work with hands.

Gandhiji felt that the needs of children in rural areas were of primary importance where 80 per cent of our people live. He had an insight and preached that our children, especially in rural India, must have education which will suit their needs and which is geared to the rural life. The 'Nai Talim' preached by him was work-oriented education. He felt that the subjects to be taught must have practical meaning and use in a child's life-expectation Also that education in villages must keep in mind the agriculture seasons and accordingly have timings and terms, so that it allows children's participation on the field and in home thus helping their parents in both areas.

In view of the above, it seems imperative to work closely with the government agencies concerned with educational planning and policy-making as well as parents and teachers to achieve the following objectives.

1. Children must feel that they are Indian, without having to mention or write what caste they belong to.
2. We should evolve a system of practical education as suggested by Gandhiji. This system of education should be built into essential subjects like language, maths., geography, hygiene and environmental sanitation with definite periods for manual work.
3. Children of Balwadis, for example, should sweep, clean, water and tend plants, keep hands clean, learn not to throw things anywhere, etc.
4. Children at the primary level, for example, should keep premises and latrines clean, channelize waste-water in right directions, see to compost-pits, take part in local small-scale industrial productions, such as a craft which normally a child would learn from his father in traditional life.
5. At the secondary level, hygiene and environmental sanitation should now be connected with applied biology, chemistry and physics. A small and simple laboratory in every secondary school may be used by the local health technician to teach children and simultaneously provide the community the needed laboratory service such as detection of worms, dysentery, malaria and other diseases. School children could help communities not to pollute tanks and other water sources by bad habits. Water-borne and fly-borne diseases could be controlled by children's knowledge and participation This should be achieved through activities like the scouts and guides programmes. Practical studies at this level should include workshop techniques related to local industry, i e. making of small ancillary parts taught by an instructor provided by the industry ; making of saleable small objects related to traditional regional crafts such as weaving, printing, carving, carpentry and teaching of simple mechanics such as repairing of radio and television sets, etc. and especially repairing required for agricultural and other implements.

Every locality and region in our country have its own local variations The object of such educational inputs should be to make a community more self-reliant through its own children. In this way it would keep them closer to their father's trade and profession and reduce the number of purely technical institutes that are costly and ineffective to meet the needs of students from a wider area. Practical, simple and appropriate training in technology should be provided in secondary schools by utilizing the services of skilled craftsmen, mechanics and technicians in the locality.

Self-Reliance

In an ancient land with a strong caste-feudal structure, self-reliance is not easily learnt or taught. The caste system makes one group separate from another and the lowest caste remains responsible for most of the manual and menial jobs. The caste system makes a strong power motivation with a need to move above someone else in order to rise. It also means a total dependence on a higher power to survive. Working together can only be taught in schools since it is impossible to reach most of the children out of schools. It is an imperative need to build team-spirit into children since it does not exist in family or social life. The following techniques can be used to teach self-reliance to students,

1. *Creation of Mutual Respect and Mutual Help* Children should have a class period of stories about persons of different regions, who were brave, who helped others and did outstanding deeds for the community. The model Indian boy and girl should be a living reality through story-books. Gandhiji's words for particular subjects may be put as slogans in classrooms. These may also be made and written by the students themselves In schools, children should be encouraged to help each other . A clever student helping a weak student, a strong child helping a handicapped one, boys doing small tasks for girls and vice-versa. They should also be encouraged to make a sacrifice of some treat or outing for the sake of another child, taking pride in the success of a fellow student who has earned praise, a prize or an award. Discouraging destructive talks and negative activities also help in building up self-reliance.

2. *Encouraging Action.* Children can be taught to take pride in doing things themselves, in cleaning their classrooms, in making rubbish bins, fly flaps, repairs of school building, maintenance of the grounds, etc. This constructive attitude is nationally invaluable and would remove the present destructive trend in young people. But it cannot be imparted by lectures, it comes only through constructive activity. Children can be encouraged to be competitive and imitative One could by making a kit or repairing a machine or making a projector function give an important example for others to follow Efforts must be made to promote this through schools Children's handicrafts, manual and technical work will encourage self reliance To this must be added resourcefulness in using wastes, turning ugliness into beauty and being inventive.

It is very important that we do something to bring about a drastic change in our education system to make it practical, meaningful and related to life. About 228 million children in India are under 14 years of age, of these 46 million are estimated to be below the poverty line. Approximately, 186 million of these live in villages and 42 million in town and cities and also there are tribal children in the hills. If we want a bright and strong nation, we must work for them.

Education in China

Instead of aping West, we could learn from the experience of our neighbours in East, who are more in our line and have struggled and found their own method and are much ahead in the world. Mrs. Baig, former President of ICCW, visited China and gave a very practical and real picture of China's approach to its children : In China considerable emphasis is placed upon preparation of the child for its role in the future. All work is geared towards production, and is centered upon the rural commerce ; collective work is the basis of daily life. All adults work for salaries (which are small) and children, youth and old work for the community.

Special tasks are assigned to each group In addition, special classes in ideology discussions and programmes are an important function of young people, as are the daily classes of drill under guidance. Military discipline starts automatically at an early age The average Chinese child today is healthy, happy and alert They have not encouraged higher education except for gifted science, medical and technological students since 1966, but they have achieved 85 per cent attendance of children in schools and eliminated killer diseases. They probably over-simplified their ways in education and brought discipline in the country by overthrowing borrowed methods and bringing in a purely original Chinese way of life.

Healthy living was brought to the child through young 'barefoot doctors' and insistence on local sanitation. Education in China is work-oriented As Gandhiji insisted, subjects are reduced to the basics, such as mathematics, language, foreign language, hygiene and political ideology At secondary level, geography, science and technology are introduced—but no history Along with their studies the children learn practical skills. The education is a drive towards self-sufficiency.

Although the situation in China may differ from that in our own country, there are many lessons to be learned from their practice of work-oriented education. As elaborated above, surely India has many benefits to reap from a system of education which is geared to the needs and life-patterns of a vast majority of our children.

□□

Construction of Mental Abilities Tests

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THE Department of Psychological Research and Testing has a rare opportunity to study a number of tests, to meet teachers and school authorities and to discuss with them the problems in the measurement of mental ability. It seems that our teachers have realized the need of knowing and measuring mental abilities of the students with the help of standardized psychological tests However, group psychological tests that are constructed and standardized for lower age students are rare, hence they cannot be used widely. Literally there are a few tests in Marathi.

The non-verbal tests of intelligence might be an answer but they may not measure academic brightness while the scholastic success may not promise equally high intelligence. To meet the teachers' problems a combination of non-verbal tests with verbal and numerical ability tests is desired.

Further, the studies in the field of measurement have shown that intelligence is no more a single unitary ability. Then the adequate instrument to measure it is the battery of various tests giving a profile rather than a single score, as profiles show higher predictive validity. Leaving aside for a while the study of predictive value of profiles, the present study has been limited (i) to construct and standardize tests of mental abilities, and (ii) to establish grade norms.

DESCRIPTION OF THE TESTS

Most of the tests are verbal and a few are numerical. The content of each test is judged by the experts and is described in terms of Guilford's SI model There are 21 tests, designed after Kuhlmann, grouped in four overlapping sets for four levels, viz. V, VI, VII-VIII, IX and onwards. Each set contains 10 sets, and each test is to be administered separately. For most of the tests there are two sample items. First is explained by the examiner and the answer is got by the students. The second is explained only if necessary; otherwise students give answer to the second and the examiner sees whether all of them have understood it. The time limits are short ranging from 2 to 3 minutes. For time control, instructions and supervision, it is desirable that experienced psychologists should adminster the test

SAMPLE

1. *First tryout.* Fifty highly intelligent (IQ 140) boys randomly selected from Class V through XI in Jnana Prabodhini Prashala were used for the first tryout. Admission to this school required 99 PR on a standardized intelligence test.

2. *Second tryout.* Sixty boys randomly selected from the top five divisions of Class V to XI from a common school.

3. *Item-analysis study.* Selection of the schools for item-analysis and field study was based on ratings by experienced teachers. First of all the names of the schools satisfying all the three following criteria were listed The criteria were . (i) Medium Marathi, (ii) Recognition by the government, (iii) Having Classes V to XI. These names were rated by two retired experienced teachers and Z P. Officers, on two characteristics as (i) Academic heights, and (ii) Socio-economic background. It is evident that these characteristics of the school ultimately refer to the student population.

Forty-four schools were rated on a five-point scale. Though it was not a standardized scale it was a better procedure to select the schools than a mere randomized choice. Along with these ratings, the strength of the school and facilities for testing were practical considerations.

A representative sample of 625 boys and 616 girls (total 1241) randomly selected from Class V through XI from 13 schools in three zones of the city, was used at this stage of the study.

4. *The normative study.* This sample comprised 1,201 boys and 1,072 girls (total 2273) from 21 schools in various parts of the city that could be divided into three major zones and suburbs.

METHODOLOGY

Preparing Items

A team of experts prepared items referring to Guilford model, Kuhlmann scale, and textbooks and reading books for various grade levels. After unanimous agreement regarding adequacy of the items it was included in the first version of the test. Items found difficult in the initial tryouts were replaced by the easier one. The conventional procedure of test development is constructing numerous items usually double the number desired and discarding many after analysing them. In the present study clarity and validity of the item was emphasized while constructing it The first version consisted of such carefully constructed items, though they are not double in number at some places.

Item Analysis Study

Using conventional method of item analysis Davis' chart was used to determine discrimination *r* and difficulty index. Items giving highly significant *r* were distributed along difficulty levels and were selected as to get a slightly positively skewed distribution of difficulty indices.

In tests 26, 27 and 35 last items were responded by quite a few students. The time-limit was short to reach the last item Such items were again administered to another group of 50 Ss and the one or two items were selected on the basis of the responses of this group.

In test 34, there were five sets of items. These five sets were compared with respect to M, Mdn,SD, score range, distribution and skewness, and the set II that satisfied most was selected. Items of the selected set were further analysed.

Field Study

The final version was prepared after item analysis. After preliminary tryout for the time-timits on a single school, it was taken on the field It was administered to 2,273 boys and girls.

The most of the items are found to be significant discriminators. As the test is used for school population and the fine discrimination at average and above average levels is intended, difficulty indices are high for many items. The selection of items yielded positively skewed distribution of difficulty indices hence the average difficulty indices are high for many items and the average difficulty of the test is little below.50.

The intention for positive skewness is not always supported by the distribution of scores on the final version of the test. The indices of skewness are very often positive, but at a few places they are very low and not significant, indicating normal distribution and sometimes even negative. Moreover, they are not always and consistently decreasing from positive to negative along with increasing grade levels.

Another noteworthy observation is that the average scores increase along grade levels evincing the validity of the test. However, there are a few exceptions. Sometimes there is a slight drop, e.g. in Grades VII and VIII on test 33. Though this drop is not significant, it is evident that average scores on this test did not increase along grades as they should be. Rather high positive skewnese for all the three grades on this test may speak for the reason The test remained equally difficult for Grades VII, VIII and IX. A similar study of the remaining statistics helps to find out the appropriate test for each grade. These studies and follow-up work will provide essential data for further revision.

RELIABILITY AND VALIDITY

The spilt-half reliabilities using Spearman-Brown formula were found for each grade on each test, separately. Some of the coefficients are very low (1.0 to 0.95) because of the varying content and type of the items within the test. The results are more encouraging with respect to item validity The coefficient greater than 0.2 is significant while many coefficients are greater than 0.5 or 0.6. Thus they certainly guarantee item validity. The criterion for predictive validity is scholastic achievement. Scores of 100 students from two schools were correlated with the performance in the annual examination held six months after the test. The product moment r is 0.67. □□

Educational News

Gifted children more important than oil

"EXCEPTIONALLY gifted children are more important than oil," said a participant at a recent French congress at Nice on this subject.

It is true that, if the world's energy sources are limited, the possibilities of the human brain certainly are not. But we still have to learn how to use intelligently this wealth, and particularly how to enable children whose intelligence is well above the average to develop their talents fully. This problem was put to the 250 people—psychologists, sociologists, doctors, geneticists from France and abroad, teachers, and parents of rarely-gifted children who gathered at the Nice congress

There are believed to be 350,000 children of this kind in France, or three per cent of the children aged between 5 and 16, of whom one in a thousand is "exceptionally gifted" and perhaps even a "genius" The psychologists say that a child is exceptionally gifted if, from his earliest years, he shows a very precocious mental development. The organizers of the congress believe in the intelligence quotient : for most children, this is between 80 and 120. If the child is below 80, according to the experts, mental deficiency is probable : above 120, the child is said to be exceptionally gifted intellectually.

If their education is ill-adapted, it seems that many of these precocious children will fail, most will run into serious difficulties and most of them will only reach a level of achievement well below their real possibilities. The pediatricians and the psychologists said they had noticed that exceptionally gifted children were often thought to be lazy because they were bored in the classroom, it often happened that one of them finished up around the bottom of the class because he had stopped working—tired of being unable to express himself in the way he wanted. If such a child can live in a suitable social background, he can be given guidance, otherwise, he might be forced to interrupt his studies and might easily become a rebel, a delinquent, even a suicide case

The "Association Nationale Pourles Enfants Surdoues" or ANPES (National Association for Exceptionally Gifted Children) believes that the principal of equal-chances-for-all on which the French education system is built works against precocious children. Forcing the same rhythm of development on all children, it encourages the "average" ones to the detriment of the backward ones and even of the "forward" ones. The ANPES says that one out of every two exceptionally gifted children is not "detected" ; and some psychologists believe that society deliberately ignores "geniuses" who will never be able to develop their potential.

The congress's main aim, to publicise this problem, seems to have been attained. A secondary aim, to get the French authorities to conceive an education system for these rare children, has not been successful. The Education Ministry does not consider it desirable to isolate precocious children in such a way; some teachers say they do not want to see the setting up of "ghettos for little geniuses", claiming that, in any case, exceptionally gifted children have a special "vanguard" role to play within a standard educational system. But at least the Nice congress has shown that precocious children are misunderstood in the present school system.

Education of the handicapped Adolescent

THERE is growing concern in many countries about the place in society of handicapped young people, reports *Innovation in Education.* This is instanced, for example, by the U.S. Public Law 94-142 guaranteeing handicapped children a free, appropriate and public education; a British Government commisssion on the Handicapped (the Warnock Committee) which has just published its recommendations; new legislation in France, and advanced reforms in a number of Scandinavian countries.

Against this background of national activity, CERI is starting on a project that aims to clarify many of the complex issues that beset international discussion of the problem as a whole. For example, those regarded as handicapped in one society may not be seen as such in another—indeed, some countries are attempting to erase the word handicap from their vocabularies in a search from what is called normalisation to stress that handicapped persons are part of, rather than apart from, the society in which they are born. It is necessary as a start, therefore, to distinguish between the systems of classification in force in the different OECD countries.

The work is being carried out under the guidance of an international Advisory Group of appropriately qualified research workers and representatives of specialised institutions. Its First Interim Report, *The Education of the Handicapped Adolescent,* has recently been issued. This defines what is meant by handicap and gives an estimate of the proportion of adolescents for whom special services of one sort or another might be used to help them cope with it. It gives a searching review of the major issues affecting the development of services for handicapped young people in OECD countries and outlines ways in which the study project might be further developed in the light of the information thus produced.

The work concentrates specifically on the problems of adolescents for a number of reasons but principally because this group of people is passing through a particularly difficult period in their lives, yet most of the research hitherto has been directed at handicapped young children and preventive measures to the exclusion of the adolescents. The Centre will, therefore, be addressing itself particularly to the main problems attendant on (*i*) schooling for handicapped adolescents, and (*ii*) transition from school to working life.

Among the specific issues that will be examined in these two areas will be the problem of absorption of handicapped young people into the normal school system. This is an extremely complex matter and opinions are still very divided on how far such integration can be taken. Another issue is the proper relationship between normal staff and specialists, the latter often having little direct contact with practising teachers. How to organise a service to ensure that specialists provide services that are actually found useful by teachers, parents and pupils is something very little is known about.

In times of high unemployment, like the present, handicapped young people are particularly vulnerable There is persistent unemployment, misemployment and under-employment among them and the project will examine all current attempts to solve these problems, not least the role of the school in preparing handicapped youth for the world of work. With the assistance of national experts, the enquiry will be further pursued into other problems associated with the education of the handicapped. The most interesting and innovative approaches will be sought so that the criteria for a range of models of intervention may be passed on to OECD member countries to act as feedback/incentives in local policy debates It is hoped that the project will also lead to the initiation of pilot experiments in new problem areas identified in the course of these investigations. In all, the programme is expected to take three years before completion. It is assisted by a grant from the Bureau of the Handicapped of the U.S. Office of Education.

Scandinavian summer seminars 1979

DET DANSKE SELSKAB — The Danish Institute for information about Denmark and cultural corporation with other nations will be conducting a number of seminars in English during the coming summer. The detailed programmes are obtainable from Det Danske Selskab (The Danish Institute) Kultorvet 2, DK-1175, Copenhagen K, Denmark. The following seminars will be on 'Children and Education in Scandinavia', and 'Special Education in Scandinavia'

The seminar *Children and Education in Scardinavia* (August 8-24, 1979) will offer a study of children in the family and in the community, aims, methods and curriculum in Scandinavian education and care for children up to the age of 16 years There will be ample scope for exchange of ideas and experiences with Scandinavian colleagues through lectures, visits to day nurseries, kindergardens, nursery classes and schools, welfare and educational centres, children's and school libraries, play grounds and other facilties

Special Education in Scandinavia

Methods and experiments in special education in Scandinavia will be presented through lectures, discussions and visits to schools and institutions The seminar (August 12-24, 1979) will also cover the teaching of technical, medical and social topics in special education and also on learning disabilities

Conducted in English both seminars will offer study of children in the family and in the community, normal and special education and care for children. Through lectures, study visits and exchange of ideas with Scandinavian colleagues, participants will have the opportunity to experience and compare the conditions of the child in the far Nordic countries.

Second state level teaching competitions

THE VIDHYA BHAWAN Govindram Seksaria Teachers College, Udaipur, has undertaken a venture of its own kind in the country in improving the teaching programme in secondary and higher secondary schools in the State of Rajasthan. They started last year the First State Level Teaching Competitions in (i) humanities, (ii) social sciences, and (iii) physical sciences. The second teaching competitions will be held during January 29-31, 1979 for selecting three best teachers in the above disciplines Swaran Padaks, Rajat Padaks and Tamra Padaks will be awarded to all the best teachers selected in each subject group. Three running trophies, donated by the Board of Secondary Education, Rajasthan, will also be awarded to the schools whose teachers have won the Swaran Padak.

Teaching kids to smoke pot, New York style

THE NOVEMBER 1978 SURVEY of drug use in grades 7 through 12 in New York State by the New York State Office of Substance Abuse Services documents a massive increase in initial, current and heavy use categories of marijuana as well as increased initial and current use of virtually all drugs in the state since the New York State Legislature's decriminalization of marijuana in spring 1977.

The report reveals among others that of the 1.8 million grades 7 through 12 students in New York, over 960,000 students (more than 54 per cent) have used marijuana at least once, 220,000 (13 per cent) hashish once.

At least 275,000 students (16 per cent) have used PCP (angel dust), a highly dangerous psychotropic substance.

At least 155,000 (almost 9 per cent) have used cocaine at least once, and 7.6 per cent have used cocaine since September 1977.

Almost 9 per cent of the students surveyed had used hallucinogens such as LSD; 15.1 per cent has used stimulants; 10.7 per cent has used depressants, such as methaqualone, and 11.3 per cent had used other narcotics, "such as opium, morphine and codeine".

Use of methadone and heroin actually drops off progressively in higher grades, suggesting the obvious conclusion that users of these drugs drop out of school.

The Substance Abuse Survey actually indicates far greater drug use than even these numbers would indicate. Since the same agency's 1975 survey, the younger 7th and 8th grade public and parochial school population has been added to the survey, as well as the entire parochial school population of grades 7-12.

Since 1975, "heavy" marijuana use has increased by 300 per cent This increase is even more dramatic because the state agency revised its definition of heavy use from upward one to 10 or more incidents of use per month. In the agency's 1975 survey, one out of every 17 students in grades 7 through 12 (6 per cent) smoked marijuana once a week. The new survey, done in March-April 1978, shows that one out of every 6 students (17 per cent) smokes marijuana more than twice a week.

New education policy of Pakistan

IN THE FOURTH ROUND OF educational reforms, since the formation of Pakistan, the military regime has ordered compulsory instruction in Islamiyat (Muslim theology) at every level and revision of curricula to motivate students towards Islam.

At present, more than 80 per cent of the people of Pakistan are illiterate, Enrolement at secondary and college stages is only 16 8 and 2 per cent respectively Fifty per cent of those enrolled drop out at the primary stage and more than 60 per cent at the secondary and other levels The curricula are unsuited to the needs of the community. Nor is the system of higher education geared to support development.

Targets of the new policy

All boys of five years of age are to be enrolled by 1982 and girls by 1987; 13000 new primary schools will be opened and the 17000 existing ones renovated; 5000 Madarsas (mosque schools) will come up. An equal number of Mohalla schools to give home-economics-oriented basic education to girls will also be started. The setting up of about 1000 village workshops and the building of over 6000 residential units for primary teachers complete the package. If efficiently implemented these targets should overcome the lags and fill many gaps. The education system, a legacy of the colonial era, was subjected to a critical appraisal by the first Pakistan Educational Conference in 1947 and again in 1951. In 1960 came the Report of the Sharif Commissin on National Education. This was followed by 1966 Report of the Hamoodur Rahman Commission. Then appeared the "New Education Policy" framed by Air Marshal (Retd.) Nur Khan. But the more the system was changed by successive regimes, the more it remained the same.

The new policy gives a free hand to private sector in education In sharp contrast to earlier policy which emphasised nationalisation of educational institutions, the military regime has given an assurance to the private sector that educational institutions would not be taken over

The examination system is also being subjected to drastic overhaul. The examination system at the matriculation level is to be abolished in favour of a system of internal evaluation. The new policy also envisages decentralisation of the administration of education.

Another conspicuous feature is the stress on Maktabs, Madarsas and Dar-Ul-Uloom; they are proposed to be recognized in consultation with the National Council of Islamic Ideology Thirty Arabic teaching centres will be set up under the aegis of Allama Iqbal Open University. The Qaid-i-Azam University, Islamabad, will have a full-fledged Faculty of Sharish Arabic is to be taught not to make the student learn from the modern Arab world but to foster obscurantism.

A journal on educational research from Madras

THE INSTITUTE OF EDUCATIONAL RESEARCH, Madras, brings out a journal : *Journal of the Institute of Educational Research.* It is being published in January, May and September every year under the editorship of Dr Y. Ramoji Rao. The contents of this journal include original research reports in education and allied subjects. It is mainly intended to provide guidance on practical problems in the field of education Besides the findings of the Institute, it also publishes research notes and book reviews. Subsciptions for annual and single copy is Rs. 30.00 and Rs. 12.00, respectively.

NEWS FROM FIELD UNITS

Bhubaneswar

Recognition of non-government high schools

IN ORDER to formulate a fair principle in giving recognition to non-government high schools under the existing rules and regulations, the state government has taken the following decisions :

The government shall take into account how the student-strength of the neighbouring recognized schools as well as their existence are affected while applying the existing rules for giving recognition to new schools.

A 'Master Plan' shall be prepared for each Education Circle by a committee to be presided over by the concerned District Magistrate with a view to arrest unplanned growth of schools in future.

To maintain an appropriate academic standard of those schools which are already recognized, all the existing schools in the state as well as those to be newly opened, except those situated in the backward areas (where the number of literates is half or less than half of the average number of literates in the state), shall be sanctioned the minimum grant-in-aid only after the students of the concerned schools appear in five high school certificate examinations as per the current grant-in-aid rules.

To receive the minimum grant-in-aid the percentage of success of the concerned school for the high school certificate examination for three consecutive years shall not, in any way, be less than the average percentage of success at state level ; and the total number of students in a six-class and four-class high school shall not be less than 200 and 140, respectively.

Girls' schools situated in any part of the state and high schools of the backward areas shall be entitled to receive the minimum grant-in-aid only after the students of the concerned schools appear in two high school certificate examinations ; the percentage of success in those examinations shall not be less than 25 per cent of the average percentage of success of the state level and the student-strength of a six-class and four-class high school shall not be less than 140 and 100, respectively.

Schools with the prescribed number of students and pass percentage in the high school certificate examination shall enjoy the facility of receiving the salary of the staff directly from the government after the receipt of the minimum grant-in-aid for three years. However, such direct payment in salary shall be discontinued if the results of the concerned schools falls below the average percentage of success at the state level for two consecutive years

Schools showing results 15 per cent higher than the average pass percentage at the state level will get first preference for sanction of non-recurring grants meant for school building and library. Girls' schools and the schools situated in backward areas will also get this facility provided their pass percentage is equal to the average pass percentage of the state.

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Book Reviews

The Idiot Teacher. GERALD HOLMES
Spokesman : Nottingham, 1977, pp. 194,
Price £ 1 95 (Rs 32.37).

THE NATIONS of the third world have called for alternative approaches to the education of the masses in view of too much rigidities and constraints of formalism of the traditional school. The present book, *The Idiot Teacher*, is a cogent exposition of an open school and non-formal approaches for its improvement and development. Though the book provides a detailed account of Teddy O'Neil who opened his school in the small Lancashire village of Prestolee, yet one can draw enough lessons to apply some of the strategies in the system of education in India. The book has been presented in 17 chapters. The Foreword by Dr. J C. Daniels and the Preface by John Wattis of the book substantiate the usefulness of the educational message to the teachers as well as parents whose children need to be educated with love, respect and pleasure. The author Gerald Holmes has lucidly described the local resources relating to physical and natural environments which can be pressed into the service for children in the realm of education. It is the ingenuity, vision and dynamism of the teacher who by dint of hard work, patience and perseverance can come out of the mires of routine traditionalism. This idea the author has conveyed interestingly and vividly in the book. The very title *The Idiot Teacher* is a good satire on the educational community who believe in learning by swallowing : who expect that children should sit in blocks and open mouths like so many fledgelings at the word of command, and the teacher then drops into their mouths pellets of information rules, definitions, names, dates, tables, formulae and the like.

After a brief introduction Chapters I, II and III of the book deal with the background of the school at Prestolee village and Teddy O'Neill the teacher who was born in a slum area in Salford In spite of his limitations he had discovered for himself a joy in literature, stumbled upon the interest of wild and country life and desired to share his interest with the boys entrusted to his charge.

Chapters IV, V and VI contain an account of Teddy's early life as a teacher in different schools, his marriage and children His teaching experiences were creative and unusual which were very much liked by His Majesty's School Inspector Mr. Bloom. While inspecting the class, he was pleased to see the exercise-books of the students. The figures were neat and the calculations had statements. Composition was good ; there were original poems and the handwriting was excellent. Mr. Bloom was so much impressed that he managed Teddy O' Neill's appointment as Headmaster at Prestolee.

Chapters VII, VIII and IX depict different phases of development of Prestolee school when O'Neill initiated his theories and beliefs to rouse and animate the school. As is evident, he had to face heavy odds in introducing innovative ideas. In the end he was successful in bringing about change in the school from 'learning by swallowing' to 'learning by doing.' Teddy believed in self-activity, spontaneity, originality and initiative which is the source of all human progress, the powers which make a real man. The Education Authority recognized Prestolee school as an experimental instituton where Teddy was given a free hand to experiment. He being hardly conscious of discipline stood for open doors and free circulation of children as individuals, each growing towards personal perfection in his own particular way through his own personal effort

In Chapters X and XI the author described tools and techniques used by Teddy in developing learning abilities and skills of students Chapter XII deals with the out-of school activities of the children of Prestolee school and their interest in the church Chapter XIII portrays a sad account of agony which Teddy had to suffer by way of school enquiry, anxiety over public complaints and strains of physical ailment. Chapter XIV deals with the efforts of Teddy in planting a garden of trees, fruits and flowers, which helped to replenish Teddy's coffers. The author also gives a brief account of the illness of his wife (Bell) and a boy and their recovery.

The author described in Chapter XV the outbreak of war and requisitioning of the school to accommodate a fire engine of the National Fire Service which resulted in dismantling the settings of the school The activities of the school children were switched over to the war preparations. The whole school was blacked out by the children. In their activities the girls sewed, boys sawed, all fetched and carried, designed and cut out and devised all sorts of ingenuities. Teddy was so happy in this solitary Lancashire village (Prestolee) enabling such things to happen

Chapter XVI contains a cogent analysis of the aims and objectives of an open school and distinction between the formal and non-formal methods of education. With flexible time-table, the children receive education through work and play. The author has given an evaluatory criterion for judging the qualities of the character of the children. In the last chapter (XVII) the author has given the proverbs of Teddy O'Neill and the magnitude of his educational success, ending the book with an appendix on desirable and undesirable qualities of a man The book, on the whole, is a good departure from the rigidities of the school time-table and its centralized curriculum However, it does not provide sufficient guidelines for developing curriculum, strategies for instruction and evaluation of students. The educational message is mostly based on the life of a teacher. The author still deserves congratulations of this interesting and useful piece of educational literature.

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A New Approach to Fundamental English Structures S. D. KALE Published by the author, 1978, pp. 44, Price : Rs. 18.00

THE BOOK ENTITLED *A New Approach to Fundamental English Structures* had been laboriously prepared by S.D. Kale. The author has used bilingual context and hence the book should be of special value to the Marathi-speaking students of English language.

A Marathi-speaking student, while expressing himself in English, has to know the fundamental structures of English language which are very different from those of Marathi and, therefore, he finds it difficult to express himself in correct English. The book under review provides a comparative understanding of these structures in ten charts. The charts provide variety of structures and the examples in Marathi give fairly a good idea of the constructional aspect of English.

The author has worked as a teacher in rural areas for a long time and, therefore, he is aware of the special difficulties of students from these areas. He has worked out every English structure with reference to Marathi A careful study of this book should, therefore, enable the student to gain a little command over the language.

The section on synthesis and transformation of sentences is well developed. It is, however, suggested that explanation in Marathi should be followed by exercises for the practice of various patterns.

This is a book on formal grammar and as such it may help the student who has learnt the essentials of English, to deepen his insight into the behaviour of language patterns. However, the book may not be of much help to the beginners.

The most important objective of teaching English in the first five years of schooling is to help students acquire the basic language abilities so that they are able to use language effectively as a means of communication. While going through the charts and the Marathi rendering of grammatical patterns it is clear that the author has tried to make it as functional as possible.

However, linguistically it is not bound to reduce the passive and reported speech to a set of mechanical rules. If this is done, some of the sentences become incongruous, e g. "I am seen by them". No native speaker will ever use the passive in this context. Similarly, some of the sentences given in 'A Chart of Essential Verb Forms' are clumsy, e g. The boy has been arising from bed". There are some printing errors too in the book.

I am convinced of the utility and effectiveness of the book under review. However, it is suggested that before reprinting it, a language expert should be asked to edit the book and make it press-worthy

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Learning and Teaching in the Nursery School
HARISH CHANDRA AND DEEPTI CHAKRAVARTI.
Prakash Educational Publications, 4/20 West Patel Nagar, New Delhi. Year of Publication not given, pp 128, Price · Rs 10

NURSERY EDUCATION, particularly identifiable with early foundations in English language through children singing rhymes and saying, 'Good Mornings', etc. is in vogue in all the urban centres. That the schools offering this type of education have no idea whatever, why they were set up except to encash the feeling among the upcoming and newly rich parents that English is good for their children and also as an index of Westernization Teachers in these schools, as we all know, are either the drop-outs of the educational system or of society or just want to engage themselves in an activity which may at the termination of their effort end up in some pecuniary advantage. Nursery education, therefore, for all practical purposes is a blind man's bluff with no set goals to achieve.

The present publication purports to help and guide the sponsors as well as would-be teachers of these schools With quotes from Bertrand Russel to a guide book from NCERT they establish beyond reasonable doubt the need for such schooling Further, with the help of Arnold Gessell they establish that the nursery school entrant in India is on an average 90 cms in height and 12 kg in weight Similarly, Comenius is involved to define "a joyful mind is half health" The children according to these authors are bubbling with energy. One would like very much to believe that this is so. Sixty per cent Indian people being below poverty line and the majority of children taking births in slums and shanty towns, one suspects the rosy picture drawn by the authors is of that class of children who at best could constitute a microscopic minority. Be that as it may, perhaps they too have their requirements and the nursery schools their *raison d'etre* is being the other name for selling the lollipop of Westernization to a class of people who are neither here nor there

These remarks, however, do not take away the merit of the effort. One does not come across a simple, easy-to-learn book on this education. Even the half-read shopkeepers running these schools could benefit a lot provided they had the patience and intelligence of reading through this slim, nicely produced publication.

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TO OUR READERS

Due to circumstances beyond our control the *JIE* is delayed. We hope to make up soon for the time lost. The inconvenience caused to our readers is regretted.

—GENERAL EDITOR

EDITORIAL

Universalization of Elementary Education

COMPULSORY PRIMARY EDUCATION FOR ALL remains a distant target even after three decades of our constitutional commitment. Not that nothing has been done to achieve the goal. Schools are now within easy walking distances. Teachers have security of jobs The quality of textbooks is gradually improving There is a general awareness among people that education is worth all the investment in terms of money and time. School buildings have also undergone some changes for the better But all these changes are so imperceptible that unless seen against the backdrop of history it would appear as though nothing has really happened. Perhaps the only explanation one could offer for this discrepancy between the aspiration and the objective reality is that the system is being expected to make up for the lack of effort of over more than a century Expectations do not observe time scale but changes do.

Elementary education does need heavy inputs before it could match the efforts and performance of a developed country. These inputs need not always be monetary—a few psychological and sociological changes are also necessary before education acquires the significance in the eyes of *all* which it has for *the few*.

Children find schools too dull to continue coming. Teachers find their job routine and avoid undertaking steps which may turn the routine into pleasure. Parents discriminate between girls and boys which is reflected in withdrawing girls from schools even before they have learnt enough to be called literates. Children from poorer homes drop out early for the simple reason that in most cases they have to earn the bread not only for themselves but for the entire home. Tribals see in education a potential instrument of alienation and also notice that in place of improving their quality of life education somehow has an adverse effect on it In this case tribals are not alone, the scheduled castes have their own suspicions about the results of education. The slum-dwellers find schools so unreal that for them education cannot have any relevance to life. In other words education has different meanings for different classes and sets of people and unless it modifies itself to suit the requirements of all it cannot hope to serve people

Non-formal education is an alternative to the formal system and understandably it could modify and adopt itself into as many shapes and forms as people may want. Indeed, under the dispensation schools could go to people at a time which is convenient and in the form which everyone recognizes. Education has no business to alienate people. It must welcome people and not turn them away. Besides jobs education must qualify one for life. It might look like a tall order but the fact is that education will have to meet these requirements. Only then could problems like wastage and stagnation, high drop-out rates, alienation, etc. be tackled and hopefully resolved.

We are presenting in these papers written by specialists, the problems facing universalization. Neither in terms of the identification of problems nor in solutions has anything spectacular been suggested. Modest expectations could certainly be met but surely very few things about elementary remain unknown. Research is possible on the more known to revalidate and update the existing data and on the less known to make it more familiar. We hope that these papers would yield sufficient number of problems for researchers to investigate. The Government of India has recently reaffirmed her priority for the universalization of elementary education. The Educational Research and Innovations Committee (ERIC) of the NCERT would welcome research proposals on the same. Besides, these papers should form the basis of informed discussion and after all doesn't research do precisely the same ?

March 1979

—GENERAL EDITOR

Problems of Universalization of Elementary Education

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IN ORDER TO STUDY the problems of universalization of elementary education, a research project entitled, 'Primary schools and their teachers: The case of West Bengal' was initiated by the NCERT in 1969. The observations and findings of the author are mainly based on this study. Main impediments for the implementation of constitutional directives are lack of adequate resources, lack of teachers, tremendous increase in population, resistance to the education of girls, large numbers of backward classes, general poverty of the people and illiteracy and apathy of parents.

The enrolment at the lower primary stage (I-IV) has risen from 37 million in 1965-66 to 61 millions in 1973 and it is expected to be doubled in 1985-86. Besides the increase of enrolment we have also to consider the other two significant aspects of the proposals, namely the reduction of wastage and stagnation and the quality of training

For every 100 children who enter Class I, about half complete Class IV, and only 34 complete Class VII. The extent of stagnation is extremely large particularly in Class I. We have to rectify these defects and ensure that every child who enters Class I reaches Class V. It is generally agreed that the standard of education given in the primary stage is unsatisfactory and it imparts little beyond literacy and some elementary knowledge in a few academic subjects. Functional literacy practically does not exist. What is expected is that primary education should lay the foundation for a child to grow into a responsible and useful citizen The Table on the next page gives the enrolment targets and achievements in the Fourth

Table

ENROLMENT TARGETS

Group *6-11/I-V*	*1968-69*	*1973-74 (Target)*	*1973-74 (Estimated Achievements)*
Boys	342.10 (93)	412 50 (105)	393.53 (100)
Girls	201.79 (57)	273 33 (73)	244.01 (66)
Total	543.89 (76)	685 80 (90)	637 54 (84)

Figures in parentheses indicate enrolment as percentage of population of the relevant age-group.

Plan in elementary education.

Although substantial progress was recorded in the expansion of educational facilities, the targets laid down for elementary education were not realized in full. The enrolment targets provide a rough and ready indication of the task that has been accomplished and does not convey necessary information for judging the effectiveness of the educational system

Universalization of primary education has to be accomplished in three phases · (i) universal provision of schools, (ii) universal enrolment, and (iii) universal retention.

(i) Universal Provision of Schools

The objective of universal provision of school facilities at the lower primary stage has almost been reached at the end of the Third Plan (1965-66). In almost all stages, villages with a population of 300 or over are provided with schools. Regarding universal enrolment a steady progress is maintained, of course, with regional variations. With regard to the third phase, the position is rather critical. The crux of the problem is to reduce the incidence of wastage and stagnation, the retention in school of the child for the full period of schooling—60 per cent of the children drop out before completing 4-5 years of schooling, and the improvement of the quality of instruction imparted The estimated number of schools for the universal elementary education must take into account the estimated population in the age-group 6-11 years and the average number of students per school. Since census reports give population total in five years' age-groups, *i e.* 0-4, 5-9, 10-14, the total population in the age-group 6-11 is obtained by adding to the census total for ages 5-9, estimated population for single years of age 5. These single-year estimates are calculated by applying multipliers in Sprague's Osculatory interpolation formula to five-year group totals.

Thus

$$P'_{6-11}=P'_{5-9}+P'_{10}+P'_{11}-P_5$$

The estimated child population for the age-group 6 to below 11 years in India in 1973 was 7 63 crores, the total estimated population being 57 crores In 1973 primary schools were located in 4,22,766 rural habitations thereby serving 76.12 per cent rural population within the habitation of residence, 90 34 per cent of the rural population was served by the primary schools located either in the habitation of residence or within a walking distance of 1 km. The average enrolment figures in rural and urban primary schools were 115 and 198 respectively. Class-wise enrolment figures (both rural and urban) in 1973 was 6.12 crores. Thus in 1973 the government provided schools for 80 per cent of the total population but so far as the girls' enrolment was concerned it was only 60 per cent of the total.

Thus if we take an overall view then we need at least five lakhs more schools. But the problem is not so simple as there are wide regional variations The problem of location for starting new institutions can only be solved by micro-level planning at the block level. Any attempt to do it by another method will be a failure.

(ii) Universal Enrolment

The enrolment ratios of different states are . Bihar 53.48, Arunachal Pradesh 56.62, Rajasthan 57.14, Jammu & Kashmir 59.57, Andhra Pradesh 70.30, Haryana 70.65, Orissa 74.65, Uttar Pradesh 77.78, Delhi 78.92, and Madhya Pradesh 79 11, Out of 30 states and union territories, Bihar has the lowest percentage among all the states. The position is not happy also in Arunachal Pradesh, Jammu & Kashmir and Rajasthan In our country as a whole, girls, enrolment is 37.73 per cent of the total but in three states, namely, Bihar, Rajasthan and Arunachal Pradesh, girls constitute only 26 94, 23.37 and 26 66 per cent respectively. A programme for increasing the enrolment should be organized side by side with attempts to provide primary schools in the remotest part of the country.

Fresh enrolments to Class I should as far as possible be restricted to children within the single year prescribed for admission. In the beginning older children who had not yet been to school will have to be admitted to Class I but if intensive efforts are made every year to enrol all the children of the prescribed admission age, the number of over-age children seeking admission in Class I will diminish year by year and will disappear almost completely in a period of about 5-10 years.

Due to low enrolment in rural areas, particularly the females, the percentage of literacy is very low in India The problem of literacy is not only connected with the universal enrolment but it is also dependent on adult illiteracy The part of the problem has to be solved through non-formal education Thus to increase the rate of literacy we have to expand the scope of primary education to all sections of the community and at the same time we have to develop suitable type of non-formal out of-school education for adult illiterates, both males and females.

(iii) Universal Retention

Having enrolled every child in a school, it is essential to see that he progresses regularly from year to year It is well known that the wastage and stagnation in our system is very large. This evil was highlighted about fifty years ago by Hartog Committee. Although this matter has been discussed continuously but very little action is taken to reduce it.

A recent study has shown that out of 1,000 students who join Class I in a given year, as many as 400 leave school before completing Class IV On a national scale, position is worse—the corresponding figures are about 56 per cent for boys and 62 per cent for girls. About two-thirds of this wastage occurs in Class I. The large wastage is due to a variety of causes. The main reasons are : (a) Unsuitable curricula, (b) Poor teaching, (c) Lack of educational equipment, (d) Wrong system of examination, and (e) Economic causes.

Most of the children who drop out or are withdrawn from schools prematurely, do so for economic reasons. At the present level of the per capita income and the nature and pattern of utilization of labour force especially in agriculture, it is unrealistic to expect that the problem of drop-outs can be solved in the near future. The provision of part-time classes which will enable the children to get education at the time most convenient to them and their parents, will constitute the right step in the right direction. The duration and timings of these classes will be determined in the light of local conditions. Greater emphasis has to be placed on the course contents. The following comment from an Unesco expert is relevant in this connection :

> In attempts to solve the social problem, it has been usual to organize literacy course of a traditional kind, including instruction in reading, writing and numeracy. More recently it has recognized that these traditional methods are not adequate to deal with the problem of ignorance, poverty, disease, etc still confronting modern society. All those people who did complete a literacy course up to a standard equivalent to about three years' primary education were turned into functional illiterates.

In 1937 Mahatma Gandhi, while addressing an educational conference, said :

> I am convinced that the present system of primary education is not only wasteful but positively harmful. Most of the boys are lost to their parents and to the occupation to which they are born. They pick up evil habits, affect urban ways and get a smattering of something which may be anything but education
>
> The remedy lies in imparting the whole art and science of a craft through practical training and through imparting the whole education

Mahatma Gandhi could foresee the outcome of the present system of primary education. If it is to be universal, we have to change our method of approach and also the course content. In the Report of the Education Commission the curriculum for the primary education has been spelt out but unfortunately even after 15 years, it has not been implemented.

Improvement of Quality

We should lay greater emphasis on improving the quality of instruction imparted in primary schools. The dearth of qualified and competent teachers has been a major impediment to the successful functioning of elementary schools. Teachers in such schools range from those who have not passed the matriculation or its equivalent degrees. More than one-fourth of teachers working in rural areas are not even matriculates, one-fourth of such teachers having no formal training in the methods of teaching. About 10 per cent of rural primary schools in many districts of India are single-teacher schools. The situation is better in urban primary schools and in junior basic schools. In more than three-fourths of rural primary schools, the number of teachers is less than the number of sections.

To make lessons more impressive to children, teaching-aids and accessories like globes, maps, models and books must be made available to the elementary schools The present situation is alarming, even black-boards do not exist in several schools. The three-fourths of the rural primary schools and the two-thirds of urban primary schools do not even possess any books

According to a survey (1973) conducted by the NCERT the average total recurring expenditure per student in an elementary school in West Bengal was 59.92 during 1972-73 In important cities this figure will be slightly higher One can imagine the sad plight of elementary education in India on which much more investment is a dire necessity.

Conclusion

Expansion of facilities at the primary stage and the universal enrolment of children and their retention in school till the end of the compulsory period is the only aspect of fulfilling the Constitutional Directive. An equally important aspect is qualitative improvement so that the instruction imparted becomes good education and helps children to grow into useful and responsible citizens The most crucial programme from this point of view is the improvement in the quality of teachers and the overhauling of the entire curriculum.

Universal free elementary education does not mean that it costs nothing All it means is that the cost of education is paid for collectively by the tax-payer. The success of this plan depends on the revenue that the government may raise through taxation.

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Universalization of Elementary Education

Cost-Benefit Relationship and Some Action-Oriented Research Projects

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UNIVERSALIZATION implies both enrolment and retention. The later is primarily dependent on quality and content. Content is also important because the obvious implication of providing universal elementary education is to inculcate in everyone certain basic values and attitudes so as to develop in them a core of common citizenship and certain basic competencies—productive and organizational skills—to enable them to participate in the economic life of the country and to assert and secure the right to work and take advantage of the opportunities thrown up by development. Besides the obvious implications of the Constitutional Directive are the imperatives of planned development which require that the benefits accruing must justify the investment made. That is why, perhaps, in spite of professions and, one would presume, serious intent of the planners to provide universal education, the hard realities, which count and should count in decision-making, prevented them from allocating elementary education the resources it required for universalization. With 60 per cent of wastage built into the programme, one cannot blame the planners for not according it the topmost priority which was professed to be given to it in Plan after Plan. The task of universalization, therefore, includes enrolment, retention, attitude building and skill formation. Again, retention largely depends upon the relevance of the content of education and the sense of its benefits to the community. Both these things are dependent upon quality and type of education provided. So improving the quality of education and increasing its relevance and returns is an essential programme for universalization of elementary education In the task of universalization thus, quality and quantity are interdependent and the task comprehends the entire gamut of activities required for an effective system of elementary education. The type of elementary education which we will need to provide has been spelt out by the Ishwar Bhai Patel Committee. Keeping its recommendations in view and the other imperatives, elementary education will need to have the following four ingredients·

1 Socially Useful Productive Work will have to be at the heart of the educational process which means education will be related to the problems thrown up by socially productive work. It will develop the scientific temper, finger-skills, habits of planned individual and group work, initiative and leadership.
2. Education will have to be related to the environment which means that life in the school will be the life of the community around in miniature, so that education can be related to its problems.
3. Appropriate programmes will have to be devised to inculcate certain basic values, attitudes and organizational skills (organization of Panchayats and Cooperatives).
4. Appropriate linkages of education with other development departments will have to be established so that it can play its part in integrated rural development

If the above four conditions are to be fulfilled, education has to be activity-centred and problem-centred. No worthwhile experiments of this type of education have been made except in basic education, where this idea was given "inspiring expression" in some places, according to the testimony of the University Education Commission. Therefore, obviously, the first thing that needs to be done is to run a few well-equipped and adequately staffed pilot projects in development blocks. The last is important in the context of block level planning which is to increasingly become the strategy of development.

The following points are suggested to be taken up in these pilot projects for immediate investigation.

1. The extent to which the extension machinery can aid an elementary school. Today the tendency is for the extension machinery to concentrate on the adult farmers and artisans and to ignore the school And this in spite of the fact that the Planning Commission had emphasized the key role of the school in community development The present tendency and practice needs to be reversed and the school needs to be given the highest priority as the most strategic point, from which to impregnate the community with new ideas. This will not only require the occasional training of teachers but their continuous training on the job in the context of the particular school farm and workshop.

2. The extent to which and the manner in which a properly aided and equipped elementary school can serve the purpose of extension without interfering with its primary function of teaching childern.

This extent need not be very small as it might appear. For life in an elementary school should be the life of the community around in miniature but more efficiently organized. The teachers and the students are in natural and continuous contact with the community and through them ideas of improvement could cotinuously be passed from the school to the community without much additional effort on their part. The students have further to be trained in community leadership.

3. The additional training which should be given to ordinary trained teachers to equip them for playing their due role in extension and the changes that are required to be made in the present curriculum of teacher-training institutions

4. The norms of building, equipment, production, etc. It may be seen how buildings of the simplest and purely functional type can be provided at the minimum cost by involving the school and the rural-community, using local materials, procuring technical help at strategic points, etc. Equipment may be provided at minimum cost through the resourcefulness of the teachers and the help of the local community. Realistic norms of production should be carefully worked out for every productive work.

5. The response from the public which a well-run school secures is as compared to the response secured by an ordinary school. Its importance is obvious. For, the major problem of mass education is to persuade and enable the community to bear the major share of the burden, both financial and administrative.

6. The net cost of elementary education, i.e. total cost-income (cost of extension work done, production and local contribution secured). There is much loose talk about the cost-iness of reoriented elementary education and it is very necessary to put the whole issue on a scientific basis.

7. The change in habits and temper of mind produced among children in well-run schools and the extent to which success is achieved in developing the scientific temper.

It is necessary for the success of these pilot projects that the best teachers, from the point of view of intelligence and aptitude, are sent to man them. These teachers will need to be assisted by the project staff in planning their work in the context of integrated rural development and block level planning Their work should be closely supervised and guided by a duly qualified officer of a high level Lessons should be well planned and, if possible, tape-recorded. These could later be edited and serve as model lessons for other teachers

In addition to the schools selected for intensive experimentation, as large a number of schools as possible in the pilot project areas should be converted into the new pattern and the remaining ones reoriented towards it by introducing such features of it as can be introduced by the existing staff with suitable guidance. The advantage of this would be that the ideas born in the intensive experimental schools will be continuously passing on to the other schools and thereby provide an opportunity of watching their working on a large scale. Further, that way we will be getting the maximum out of the education system for extension purposes. Also, the impact will be on a sufficiently large area and will thereby provide an opportunity to study the response of the community to the various ideas, broadcast through the agency of the school. □□

Immediate Research in Elementary Education

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THE Constitutional Directive for universalization of elementary education for seven years has not been achieved so far because of several factors like remoteness of small villages or habitations with less than 200 population and the difficulty in setting up schools in these areas; paucity of research and innovative projects, with a view to developing materials and programmes which may motivate the children to attend primary schools; lack of motivation amongst teachers to work with a professional zeal in this uphill task; lack of attention to the development of curriculum which would have relevance to the needs of children coming from different backgrounds, especially the rural poor; dropping out of children due to stagnation as well as due to lack of interest in learning, absenteeism; lack of adequate facilities for handicapped children, and adequate and effective training of teachers, etc.

Since the largest number of young people in the country for many years to come would be able to have schooling up to a maximum of seven years of education, the following researches require immediate attention with a view to finding alternative approaches for solving problems as they arise from time to time.

Since we have failed to enrol every child in the age-group 6 to 14 years into schools, it is necessary to study the main causes for non-enrolment of children into schools and the reasons that prevent these children from attending schools. It would be necessary to examine what changes must be made in our present day inflexible full-time school programmes to enable such children to attend school. A constructive and elastic approach is necessary to successfully make it possible for every child to attend the school.

Once the children are enrolled in school, even then there is large-scale absenteeism in the elementary schools which leads to dropping out of children from school as well as to stagnation.

1. Indepth study of cases of wastage and stagnation in the educationally less developed areas of the country, including tribal areas, with a view to find the reasons for the dropping-out of children as well as the facilities required to make the programme of universalization a success.
2. In small remote villages with less than 200 population, it is necessary to provide schooling facilities. Experiments will have to be conducted to try out economic ways of meeting this need, particularly through the appointment of peripatetic teachers or by establishing a common school at a suitable location which may cater to the needs of a group of villages Study of special methods of teaching will have to be undertaken so that effective schooling is available to these children.
3. Study of various factors which are responsible for inadequate achievement and irregular attendance, like the suitability of hours when the schools should function so as to enable older pupils to participate in farm work and other economic activity, the fixing of the most convenient time for vacations and development of an elastic and pragmatic approach to organization and supervision of schools.
4. Development of an integrated curriculum for the lower primary as well as upper primary (V to VII) classes with a view to bringing greater relevance to what the children are expected to achieve by way of basic skills of reading, writing and arithmetic, and attitudes like a scientific attitude, etc. as well as work-experience and skill training for a multiplicity of jobs.
5. A number of small experiments need to be undertaken and supported through voluntary and other agencies including colleges of education and departments of education, with a view to developing alternative methods of teaching and learning to facilitate greater achievement and more effective learning and application of skills learnt to solving every-day problems.
6. Examining various possibilities of using educational technology for achieving the purposes of elementary education. Audio-visual aids, mass media of communication like radio, films, TV should be fully exploited for the purpose.
7. Development of very simple teaching materials and inservice training of teachers in the use of these materials for making primary education a happy and exciting learning experience.
8. Preparation of software for use in mass communication media, like radio, TV, etc. for strengthening the learning programmes as well as for enriching teachers' experience.
9. Continuous assessment of alternative programmes with a view to find more effective methods for achieving the goals of primary education.
10. Development of tools and criteria for assessment of teachers' work in the study of factors and incentive, which would motivate teachers and voluntary workers in the effort of universalization of education.

11. Development of materials which may make learning more meaningful and also enable children of varying abilities to progress at their own rate and pace. Multilevel materials would help to reduce boredom and stagnation
12. Study of the gifted children, develoment of enriched curriculum for the gifted.
13. Undertake action-research projects which would make it possible for the upper primary classes to be productive and enable the children to get relevant skills and work-experience.
14. Intensive research for finding ways and means which would lead to more effective but at the same time economy of time and money in the study of the mother tongue as well as other languages required to be learnt by all students under the three-language formula.
15. Conduct experiments with a view to establish the concept of the integrated primary unit so that stagnation and wastage may be reduced to the minimum as individual differences in children as well as their rate of growth is most varied at the primary level.
16. Development of criteria and methods for evaluating different school programmes and their effectiveness.

Very few studies have been conducted to assess the needs of children with different types of handicaps. The present schools for the handicapped children are beyond the reach of most children as they are very expensive. It is, therefore, necessary to take up experiments and researches to develop methods for educating handicapped, children in common schools and evolve techniques that would help their integration in the common stream.

Selection for training and recruitment practices for elementary teachers has been neglected so far and the practices differ from city to city and state to state. It is, therefore, necessary to undertake a number of studies to evaluate training programmes and programmes to judge their effectiveness as well as to continually assess the present programmes with a view to make changes in the programmes to meet the needs of the objectives and purposes of elementary education. The elementry school teacher is today burdened with a number of activities and has to encounter so many pressures from different sources. It is necessary to examine their workload as well as the socio-economic conditions of the teachers and their provision of physical and other facilities to enable them to function more effectively

Research and the preparation of textbooks and reading materials needed by elementary school children in different parts of the country need urgent attention. Most of the bases for our curriculum development, teaching methods, reading materials, etc. are the researches undertaken in Western countries. It is necessary to undertake such basic studies of the growth and development of Indian children and evolve appropriate curricula and teaching methods which would meet their needs and are in consonance with their capabilities.

There is great scope for development of research in teaching of Indian languages which are phonetic in character and have a very simple script compared to the English language. Studies of all the reading, comprehension and reproduction vocabularies of children at different levels and different age-groups need to be undertaken with a view to assist the scientific preparation of textbooks. Research in developing group methods of teaching, where the peer group can stimulate and support each other, would help in reducing costs.

Studies on the development of foods which would meet the local nutritional requirement of school children and the provision of school meals programme with as little expense as possible but at the same time maintaining the nutritional value of the meal are essential.

A study of the distribution of powers and functions in respect of administration of elementary education and the planning of the decentralized system of administration which would lead to a healthy growth of schools and an educational system are essential in view of the limited resources available and the need for greater involvement and participation of the community in the programme. Study of ways in which the local community can be involved in the total programme of the development of the local elementary school would go a long way in reducing wastage and stagnation as well as absenteeism.

Researches into reduction of costs and capital expenditure in the provision of buildings and equipment which takes away a major share of the capital cost is also a high priority.

These are some of the problems which require urgent attention. It must be admitted that research in elementary education has so far been the most neglected area of research in education. A greater priority and funding needs to be given if we are serious about fulfilling the Directive of Article 45 of the Constitution for universalization of elementary education.

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Universalization of Elementary Education

A Source of Small Projects

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THE CONSTITUTIONAL DIRECTIVE to secure universalization of education is yet to be implemented fully. It is still an unfinished task. There has not been large-scale simultaneous and systematic search for alternative models to suit the needs of the various areas and the population The entire educational scene, particularly at the elementary school stage, lacks uniformity in respect of the content and the approach to education.

There are a few basic considerations which have, by and large, been lost sight of. One such consideration is the intrinsic relationship between the different stages of education. The stages are, like those of life, gradual and continuous. So the reforms in education have to be whole and not in piecemeal. Viewed in this context the national determination to wipe out illiteracy is of relevance to universalization of elementary education. Both are indeed interdependent. The spread of literacy brings about increasing community consciousness and appreciation of the importance of education in general and elementary education in particular. Education, universalized as per the national promise will certainly arrest the further increase in illiteracy in the country. The change in the conceptual frame in relation to both concept and strategy of the National Adult Education Programme launched on a massive scale is expected to seriously affect the trend and tempo of elementary education. The strategy for more effective realization of the benefits of interdependence has to be evolved and worked out, Looking at life and education as one whole is another basic consideration to be emphasized. The compartmentalization between living, learning and working is completely untenable. The teacher-preparation, curricular planning and implementation and evaluation have to be accordingly designed. Living and working can be a source of learning which, in turn, can provide experiences to make living and working richer, fuller and happier. It is, for this reason, that in the Gandhian scheme of education, programmes stem from the needs and problems of life.

Quite linked to the above problem is the question of life-long learning. The implications of life-long education for the different stages of education have to be worked out. The content of education, the teaching and learning methods and the evaluation techniques have to be studied. Mere structural provision of education would not make learning coextensive with living unless interaction between education and life and interaction between the different stages of education are worked out.

Projects for organizing pre-school centres, non-formal programmes for the non-attenders and drop-outs may be undertaken to develop curriculum and study their impact on primary schools. The experimental projects may also be directed to the extending of the pre-school approaches to the children in Classes I-III. This has been experimented in some states in the shape of integration between pre-school and school education. Experimental projects may also be evolved in the context of education as life-long process to determine goals of primary education, styles of teaching, evaluation procedures, etc The primary school by virtue of its location in remote rural areas is exclusive and isolated. So the trend is to over-do and superimpose the materials of learning on the learner. Experiments may be undertaken to eradicate these exploded notions.

Areas of Experiment and Study

There are many areas for research. The problems of study are complex and complicated. From this purpose, primary education is a virgin soil. It poses many problems which are varied in nature. Out of the multiplicity of areas of study, the following seven broad areas are rather suggestive.

1. *Goals, Objectives and Values*

The practical utility of this area is seldom realized. The teacher is quite often guided by the textbooks. He is not conscious of the goals and the values. His participation in their formulation is not secured. Even the authoritative materials such as the syllabus, textbook, etc. do not make clear and categorical pronouncement. The objectives are not spelt out in relation to the stage of education, the class, the subject for each class. They are stated rather in a global fashion almost like a slogan leaving no room for specific action.

Training in citizenship may be taken up as a project with specific activities, relevant to the environment of the school. Secularism, democracy and socialism are our national goals The oneness of feeling among the children of the different strata of the society may be studied and programmes undertaken. The democratic values such as respect for individuality, tolerance, fellow-feeling, etc. have to be indicated. Programmes of self-sufficiency, self-reliance may be spelt out in relation to activities. The general objectives of education are also important. Habit formation, development of skills, attitudes and understandings are conspicuously absent although they are regarded as major objectives of education. It may also be seen how they are reflected in the teaching of different areas and necessary experiment may be designed accordingly. A project on the observance of the days of national importance may be planned Identification with the national symbols and signs constitutes a major area of importance.

2. *Content of Education*

The adoption of the same curriculum along with the same textbooks, games, songs, handwork, etc. has been an over-ambitious zeal based on wrong assumptions. Such wrong assumptions arise from two beliefs, viz. teachers' helplessness and their habit of looking up for orders So to break this vicious circle, we have to plead for freedom of the teacher Within the frame of the national goals and the minimum standard of attainment, there should be varied courses in recognition of the individual differences.

Work as the vehicle of education under Basic Education was an innovation of the Gandhian age, most appropriate to our conditions. An economic activity of the neighbourhood may be taken up for the purpose of an experiment. It may be seen if from the point of skill, understanding, knowledge, attitude, etc. the experimental group fairs better than the controlled group. This would perhaps establish increasing relevance to education. Quite in line with this kind of thinking, it was suggested in the syllabus for a complete Basic School (developed by the Hindustani Talimi Sangh, Sevagram) that the following five activities of "most fundamental importance for life with the richest educational opportunity" are worthy of experimentation: The practice of (a) clean and healthy living, (b) self-reliance, (c) a useful basic craft, (d) citizenship in a community, and (e) recreational and cultural activities.

The schools in the neighbourhood may take up each activity separately and the experiences may be pooled to develop a more functionalized curriculum. The sequential division of the content may be developed to provide opportunity for individualization, of instruction and to make possible experiments for reducing wastage and stagnation

3. *Methods and Materials*

Learning by doing, by activity and by experiment has a tremendous scope for experiment Learning by participation in group activities may also be tried out This is a feature of kindergarten and has indeed a rich scope for experiment in the primary school The play-way technique has also to be tried out in a specific class or in relation to some specific topics of a subject. To really provide the base for developing originality, discussion method and picture composition may be taken up.

The excessive dependence on textbooks and cheap reading materials has killed free enquiry, questioning and observation, so natural to small children The garden, the nearby spot in nature, the insects, birds, the weather, etc. may be studied as a project That would make the children creative. Dance, drama and music are expressional areas.

Handwork is another example. Art, painting, etc. also come under this. It may be experimented how these can be developed.

Arithmetic through understanding, language lesssons by activities, social studies by excursions and field-trips, nature study projects, science teaching by doing, etc. may be tried out in specific subject areas.

We need experimental evidence for and against the different approaches to calligraphy, dictation and story-telling, composition and letter writing in various forms. There is no experiment on them. Many resourceful teachers suggest many ways of correcting pupils' written exercises. If we take up experiment on them, we will thereby be able to incorporate them in the educational practices of the teacher.

4. *Universal First Level Education for the Weaker Sections*

This is a great challenge. It comprises the nomads, the tribals, the urban slums, the girls in the rural areas, the physically handicapped and also the socially and the economically disadvantaged. The real problem rests in the schools located in such areas. Imaginative projects with appropriateness for the group may be developed.

The draft Sixth Five-Year Plan (1978-83) of the states has a major objective of reducing the inter-district imbalances, and recommends 'area-level' planning with the block as the micro-unit It leads to area-specific action and problem-specific programmes and calls for changes in the strategies and operational logistics.

The scheduled castes in Orissa constitute 15.09 per cent of the total population The percentage of enrolment of 6-11 age-group in 1977-78 is about 77 and in the case of 11-14 age-group, it is only 14. The scheduled tribes constitute 23.11 per cent of the total population In the case of the age-group 6-11, the percentage of enrolment is 61 and for the age-group 11-14, it is only 9 In place of targets like enrolment, number of schools, appointment of teachers, etc. hitherto adopted, it is to be seen if output targets like reduction of drop-outs, increase in enrolment of girls, etc. will work better.

The state often offers assistance. This is in the nature of incentives, such as scholarships, free uniforms for girls, etc. The PTA may also be tried out The impact of visiting the homes of the school-going children may also be studied. Organizing the school community and ultimately the community school may also bring about improvement. Running public libraries, museums, community centres, gardens of herbs, etc. may also be taken up as projects to study their impact.

5. *Organization and Supervision*

This opens up a series of experimental projects including school timing, time-table, work-load, work distribution among the teachers, decoration, school premises, co-curricular activities, etc. It has to be realized that the success of the school depends to a great extent on the organization of these activities.

Strategies for multiple class teaching and large class teaching, the former a phenomenon of the rural areas and the latter of the urban areas have been the crucial problems of school organization. Utilizing resource persons such as artisans, educated youth of the locality in the school, specially in areas where expertise in the school is not available such as socially useful productive work. dance, drama, music, sewing, embroidery and needle work may be tried out.

Wastage is generally a problem in primary schools and specifically with such groups. It is known that about 50 per cent of the children drop out between Class I - III and only 22 per cent of the Classes I entrants are available for enrolment in Class VI The problem has to be specified at the level of the school, its classes and the boys and girls Special programmes may also be exprimented. Measures like pre-school education, improvement of the school condition, suitable teaching methods, ungraded system, evaluation programmes, etc. may be experimented. Non-formal programmes for the parents and the dropouts may be tried out to study its impact on wastage. Involvement of government officials (working in rural areas) in school programmes has to be tried for effective implementation of the policy of universalization.

The profile for self-evaluation by individual teachers may be developed. The Staff Council should operate as a medium for planning and reviewing the school work. A profile for supervising practical activities such as SUPW games, safai, etc. may also be developed. The use of the cumulative record card may be developed.

6. *School-Community Relations*

It has to be experimented how there can be free interaction between the school and the neighbourhood. The academic value of the school helping the community in the time of need, social service, inviting parents to school, observing days of importance, etc. may be studied.

The open-air school is also a developmental project. It may be treated as an experiment if we study its impact on the experimental group in relation to self-expression, originality, self-study, etc. The natural setting may be utilized and the resourcefulness of the teacher may be studied.

The maximum utilization of the resources of the school may be taken up as a project. Equipping schools with the community support and studying the utilization of the equipment may also be a project. The focus is not on the plethora of objects and equipment to be collected, but on organizing them for the academic growth of the agencies involved

Special programmes to identify and nurture the gifted and the retarded children may be designed. It poses the larger problem of 'individualization of instruction' on which some experimental projects may be taken up leading to the development of instructional materials, improvement of teaching, evaluation and guidance.

This is also a problem of developing leadership among the children The monitorial system is perhaps non-existent and not scientifically developed wherever it exits. Practice of self-government may also be tried out. As a measure of developing leadership and initiative and in recognition of the fact that the child is not only an individual but also the member of group, experiments may also be piloted The school climate and its tone are the major components that constitute a successful institution

7. *Teacher Education*

It is a problem that the trained graduates with specialization in secondary education handle elementary school subjects and provide leadership as head of the middle schools for development of elementry education.

As the universalization of elementry education has been the main thrust of the Sixth Plan, there should be a balance between the supply and the demand for trained teachers without which the quality of education is bound to suffer The qualitative improvement of teacher-preparation in the state should be a major concern and development plans should be drawn up.

The content of the course lacks relevance to the work of the teacher in the different areas with diverse socio-economic conditions and the advance in pedagogy and the subject-areas, it is of an uniform pattern. The needs and problems of the rural areas inhabited by scheduled castes/tribes and other socially disadvantaged groups have not been reflected properly in the course of teacher education. Non-formal programmes which feature as a major trend in the Sixth Plan have not been given the importance, they deserve. Micro-teaching, programmed learning, evaluation, guidance and such other modern trends are either completly absent or discussed only in theory. The nation's commitment to the establishment of literacy in the country involves the inevitable participation of the primary and middle school teachers in organizing adult education centres and activizing and promoting voluntary agencies should be reflected in the curriculum for teacher preparation at all stages. It is also necessary that the pre-service teacher-education programme makes room for designing and undertaking small research projects and experiments.

Peripatetic and leave-reserve teachers are proposed to be appointed with a view to run non-formal programmes and to fill in vacancies particularly in the single-teacher schools. The orientation of such teachers is a problem. The experienced primary school teachers will, as usual, be called upon to shoulder responsibility in this regard This has to be defined in specific terms and the role of the training school has to be spelt out until alternative models are worked out.

The training colleges in the state have been selected as centres of continuing education. It is hoped that sustained programme based on systematic study will be worked out.

The centre-schools and the centre meetings are a familiar device which has fallen into the rut. It has to be activated. It should be a centre of group dynamics. The scheme of adopted schools is not new to the state. But it is only in name. The school complex may also be worked out and explored in relation to the intensity and complexity of the problems.

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Problems and Possibilities of Universalizing the Primary Education

Identification of Areas of Research

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REORDERING of priorities in the plan outlay indicate the responsibilities of the planners and educators in making the primary education fulfil its anticipated targets For the fulfilment of these expectations, it is not enough to bargain for more plan resources. What is urgently needed is a systematic effort to introduce reforms and innovations in the structure, organization and content of primary education. Unless it is attempted, reordering of priority does not result in any gain

The basic objective of the sixth five year educational plan is to universalize the elementary education. In this country efforts have been made since independence to universalize elementary education Our original aspiration was that within the ten years of the proclamation of the Constitution we would universalize it But even after 30 years or more we have not achieved it. If we think that more money will enable us to universalize it, we will be wrong, unless we adopt a qualitatively different strategy and plan of action.

In our anxiety to show that we are making progress in universalizing elementary education, we have been working out the statistical target figures in such a way that now the enrolment is shown as around 80 per cent of the primary school-going age-group.

But the reality is that half of the children are out of school in the sense that they have not entered into it. This figure is in a way conservative because, even according to the statistics provided,

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20 per cent are shown as non-entrants and about 50 to 60 per cent as the drop-outs especially at the end of the first year. So the figure should be anywhere around 70 per cent.

A large proportion of those who drop into the schools are those who live in the circumstance of poverty. Poverty breeds its own culture of contentment, low aspiration, irrational beliefs with lack of faith in manipulation of circumstances. Both the objective circumstance as well as culture of deprivation are not conducive for seeking accessibility to educational opportunities. In approximate terms those who do not get into schools belong to the category of low-income, low-caste, rural and female category. Many of these parents have no belief in the survival of their children and hence do not send their children to schools. This is an *antecedent experience factor*.

Another factor relevant in this context of parents' indifference to the schooling of their children is the *economic factor*. We have not adequately realized that mere free education is not much of a concession given to the parents because sending a child to the school involves certain obligations and compulsions on the part of the parents to provide to their children certain facilities which are beyond the ability of the parentss. For example, the school-going children have to be adequately clothed, maintain certain level of neatness, they should have certain facilities at home to study, etc. All this means additional expenditure for their parents. Another factor which is also important is the *income foregone factor* while attending the school. In these circumstances the usual incentives like free education, mid-day meals, free book supplies, etc. cannot compensate with immediate losses to be incurred by the parents. *Anticipated future gain resulting out of the deferred gratification of the present is not very realistic realization one can expect from the parents of this category*. One may hazard in this context a strategy that incentive given in the form of wages to the children who attend the school may be an effective incentive. How much should it be, is a matter of trial. This incentive need not be given to all, but may be extended to only those who come from low castes and poverty conditions. We estimate that about 40 to 50 per cent of children may require this kind of incentive and for only two to three years, which is the period of potential drop-out.

From the point of view of the child attending the school, there may be a number of constraints, the understanding of which is absolutely necessary. We cannot force a child to enter into the school and not to drop out. On the other hand, if we take up the approach of helping the child to enter into the school, and stay on, it may work better. The most important constraint is the environment of the child. The children who do not get into the school and who do not survive in a school live in a particular environmental situation which is conducive for staying away from the school rather than to get into the school. Most importantly the children of that category understand that not getting into the school is more natural than getting into the school, since they see that not many of their peers attend the school and not attending the school is not a stigma or humiliation.

Another problem is that we cannot be dealing with this situation in an individualized approach. The present efforts are more of the nature of trying to enrol the individual children. On the other hand, if we adopt the strategy of enrolling such students in groups it may work better. If we look into the school situation more closely we will understand another set of constraints which push the children of this category out of school. In this context, we have to learn certain important things from the socialistic countries In those countries the children are made to forget about their family's socio-economic background through certain practices. For example, the children are expected to wear uniform dress In a country like ours where the inequalities are too many, the differences will be too glaring if we allow the children to wear their own dresses. This will be particularly disadvantageous to the children of poor families who in most cases will not have anything to wear. Thus the schools must have an obligation to provide uniforms to all children. Otherwise, it is highly consequential to the social dynamics among the children in the schools which is of disadvantage to the poor students. Further, it should also be noted that the children can be retained in the schools only when they identify themselves with the school and feel proud of it. Again, one of the ways of bringing this identification is through the school uniforms.

Another factor which might help the children to be attracted to the school is to give them, especially to the deprived sections, *a new identity* For example, one can think of modifying the names of the children of low castes so that they sound as modern and as Sanskritic as that of others. This is an important cultural factor.

Another very important decisive fac-[illegible] which discourages the child to be in the school is the *discrepancy between the pre-and post entry behaviour*. In a normal school situation the school system imposes a great deal of discipline before they enter into the school.

The *teacher factor* is also very important in influencing the children to enter into the schools and continue. One thing which we have ignored all these years while preparing the school teachers is that the teachers have to have versatile talents rather than merely training them in pedagogy.

Another inadequacy in the typical school teacher in this country is his inability to deal with the students of unequal background He should be able to neutralize the forms as well as the consequences of the heterogenous socio-economic background of the children. Unless the teachers have abilities they cannot help to solve the problem of inducing the children to get into the schools.

What is it that the child is expected to learn in the school and how he is taught is also highly consequential for the universalization of elementary education. In other words, the content is also an important factor in this context. The most obvious mistake that we have committed in designing the curriculum for the primary schools is not to treat it as a possible terminus functional level for over 70 per cent children. On the other hand, the curriculum design is oriented to the requirements of the higher stages of education. This has two problems. One, that the students at the primary school level may not find it familiar to their environment and its needs and even when they complete the primary level they do not find it functional to their life opportunities, like their occupations. All this has the potential to make education dreary and irrelevant. So, naturally the children tend to forget the content no sooner they leave the school The textbooks that are prescribed are too many and are not based on the given conditions of a region, but are based on who has written the book. *As a matter of curriculum strategy for the primary schools the acquisition of the knowledge should be incidental to the acquisition of literacy skills.* Further, the emphasis on work-experience may also interfere with the major objective of primary education viz. literacy. In an ideal condition, there should be a separate arrangement in a very non-formal sense to give work skills to the children who discontinue their schooling.

As it is, the curriculum prescribed for the primary schools demands the teaching of the subjects for four to five hours a day throughout the year. If we chop of all that and make literacy alone as main concern there does not arise the need for keeping the children for such long hours in the classroom. The children in such a situation will have less of drudgery and more time to play in the school, if the school provides adequate facilities for play. Thus we can attract the children to schools. Once the children firmly acquire the literacy skills the content may be improved in the subsequent stages of education.

So far as the structure of the primary education is concerned we may try a system of keeping the four years of schooling as one unit and not dividing it into four distinct years of schooling. Secondly, it gives us the advantage of coping with the problems of slow learners. Thirdly, it will take away the fear of failure which will motivate the student better in attending the school. In other words, the present system of yearly curriculum increment with its uniform progression and the division of the levels into the standards is disfunctional

The *teaching strategy* is also an important factor. The teaching must be based on the principle that each individual must be treated separately for setting up the uniform objectives based on his own abilities and preparedness, instead of setting up the uniform objectives for all the children. This is one of the strategies suggested in non-formal system of education Further, the learning should provide excitement to the children.

As an epilogue to this paper we wish to stress the need for the massive investment of the nation's resources for the development of the children of the age-group 0-11. Otherwise we will be will perpetuating the problems of ignorance and poverty for ever.

The following areas of research emanate from this paper .

1. An enquiry into the personality, family and environmental characteristic of those who do not enter into the schooling process (non-dropins).
2. An enquiry into economic and cultural constraints for the universalization of elementary education.
3. A study to develop the strategies of mobilizing the socially disadvantaged children into the schools.
4. Identification and development of required abilities of teachers for attracting the children into the schools.
5. Development of appropriate curriculum and evaluation strategies for attracting children into the schools.

6. Development of alternative structure of primary education to facilitate the enrolments
7. Development of alternative activity patterns of the school system to make school attractive.
8. Development of strategies to motivate the parents in sending their children to schools
9. Development of the strategies to make the children identify themselves with their schools.
10. Identification of the policy and programme implications for different sections of population arising out of alternative systems of primary education

Each of the above areas of research is divisible into a few experimental projects

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Non-formal education by its very nature is flexible in character. It lends itself to as many adaptations as there might be situations and needs. This, however, does not mean that non-formal education is casual education or incidental education Non-formal education is an organized programme of education. Non-formal education focusses on the learner's needs and interests and provides resources and help for learning as far as possible at one's own rate. To start with, the primary school and its resources including the teachers may be utilized to develop the methods, materials and resources for non-formal education

— REPORT OF THE WORKING GROUP ON
UNIVERSALIZATION OF ELEMENTARY EDUCATION

Universalization of Elementary Education

Progress, Problems and Prospects

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THE International Commission on the Development of Education (1971-72), while analysing the objectives of education and strategies for the achievement of the objectives, gives a clarion call to all the nations to provide top priority for universal elmentary education. In the same vein, the Kothari Commission (1964-66) had already declared the importance of elementary education in the national development :

> In the next two decades the highest priority must be given to programmes aimed at raising the educational level of the average citizen. Such programmes are essential on grounds of social justice, for making democracy viable and for improving the productivity of the average worker in agriculture and industry The most crucial of these programmes is to provide, as directed by Article 45 of the Constitution, free and compulsory education of good quality to all children up to the age of 14 years.

Elementary education which precedes secondary and tertiary levels of education becomes the lever of development, because the basic skills in reading, writing and computation imparted in elementary stage are indispensable for the formation and development of specific skills. The end result of elementary education is 'effective permanent literacy' which leads to mobility, productivity and innovativeness.

It is worth noting here that the famous Sargent Plan (1944) accepted the compulsory schooling for eight years for all children and planned to achieve this in 40 years (1944-84). With great ambition and zeal the Kher Committee reduced the plan period to 16 years and wanted to achieve this by 1960. The framers of the Indian Constitution, perhaps, wanted to adhere to the period and declared in 1950 when it was framed, that universalization of elementary education should be achieved by 1960

Because of the inherent difficulties in achieving the target by 1960, several modifications were made and finally it was decided that 100 per cent enrolment up to middle stage should be attained by the end of Sixth Plan. The progress in enrolment stage at all India level since 1950-51 was phenomenal so much so that 100 per cent enrolment had been achieved in respect of boys in the age-group 6-11. It is far less in respect of the age-group 11-14 in general and girls' enrolment in particular.

However, inter-state comparison which is essential for decision-making and for taking action programmes, showed the following facts.

In 1974-75, the enrolment ratio for the age-group 6-11 varied from 54 per cent for Bihar to 115 per cent for Kerala (more than 100 per cent is due to the inclusion of children who are below and above the age of 6-11, studying in classes I-V. In respect of the middle level, it ranged from 15.3 per cent for Bihar to 82.7 per cent for Kerala. Further, there is definite positive correlation between enrolment in primary level and middle level (P=0.7314, significant at 0.01 level) The coefficient of variation was greater for the middle level indicating the wide variation in enrolment ratios at this level which implies the need to identify weaker regions for launching special schemes and projects.

The constraints which affect the attainment of 100 per cent universalization of primary education are multi-dimensional in character are interrelated. Some of the major factors which hinder the progress of universalization of elementary education are :

a. Economic factors (low per capita income).
b. Communal and sociological factors (scheduled castes/tribes and their education).
c Educational and cultural factors (Illiteracy of parents and their cultural background).
d. Social and religious factors (customs, religious rigidity and taboos, e g. Muslim girls' education).
e. Geographical and regional factors (backward region, hilly area).
f. Academic factors (outdated curriculum, unattractive school environment and methods of teaching, lack of audio-visual equipment, etc).
g Financial factor (financial limitation and priorities among competing departments and levels of education
h. Administrative factors (lack of modern management techniques and accountability in educational administration).
i. Psycho-physical factors (malnutrition), handicapped children, psychological disorders, mentally retarded children).

These multifarious constraints not only affect the progress of universalization of elementary education by keeping away some percentage of children from schools, but also create havoc through educational wastage and stagnation, which are the twin chronic problems in the field of education.

The Unesco Courier (July 1972, No. 60) revealed that the quantum of dropouts varied from 10 per cent in the developed countries to 80 per cent in the underdeveloped countries. In India also several studies showed the mammoth nature of the problem and the colossal loss of scarce resources.

An in-depth case study carried out in Tamil Nadu showed there is a decreasing trend in wastage over the decades but the rate of decrease is not appreciable. For example, in Tamil Nadu the extent of wastage up to Standard V was : 77 per cent in 1926-27, 74 per cent in 1936-37, 60 per cent in 1947 48, 51 2 per cent in 1957-58, and 53.1 per cent in 1967-68. The mean rate of wastage in 1967-1977 is 42.8 per cent.

The enrolment ratios and wastage rates vary from state to state and district to district depending upon the socio-economic, geographic and cultural background of the people.

Special Study

An in-depth study on 'Wastage and stagnation by sex and grade in primary and middle classes in all the four states in southern region', was carried out by the author in 1978 for the National Training Seminar on Methods for Projecting School Enrolment, organized by the National Staff College, New Delhi and the Office of Statistics. This study revealed several interesting patterns in the wastage rates of the states and helped to suggest several action programmes for reduction of the wastage Such inter-state comparison and inter-temporal comparison will be useful to identify the trends and weaker regions which need immediate attention. Similar studies at taluk and district level are essential.

A correlation analysis between wastage rates and socio-economic correlates of the four southern states showed definite nexus among them. There is complete negative correlation (—1.0) between wastage rates and enrolment ratios both at primary and middle levels, which implies that where the enrolment ratio is high, the wastage rates are less. This is also supported by the complete negative correlation between literacy rates and wastage rates. Therefore, the importance of universalization of elementary education is reiterated. If the literacy rates improve, the enrolment ratios increase and the wastage rates decrease That is, the improvement of elementary education has a *multiplier effect*. The study also showed the need for better school facilities, and greater quantum of per capita expenditure on elementary education

Research-based Action Programmes

The foregoing discussion shows the utility of in-depth studies which help to take right decision at the right moment. Especially in the present age, characterized by population and knowledge explosion, there is wide scope for research of intervention type.

Alternatives

Considering the gravity of the problem, there is urgent need to identify alternatives in schemes, projects, methods to grapple the elusive problems of universalizing elementary education atleast by the end of the Sixth Plan period There is wide scope to take research projects relating to inputs and throughputs in order to get better output.

Suggested Areas for Research

The following are a few suggested areas for research ·

1. Experimenting need-based curriculum.
2. Programmes and projects for mass media to instil among the people the importance of elementary education.

3. The effect of mass media in disseminating the importance of education and in improving the enrolment ratio.
4. Alternative programmes for educating children in the age-group 6-14.
5. District and taluk-wise surveys to identify the weaker areas and variables which act as a major constraint in universalization.
6. The effect of Balwadis and chreche in improving enrolment and reducing wastage
7. Means and methods of providing pre-primary education on a mass scale
8. Actions required to curb mushrooming of unrecognized schools (unaccounted enrolment in these schools distort the educational statistics).
9. Plans and procedures to curb furnishing bogus or false figures in statistics [the Committee on Universalization of Primary Education (1978) has stated that 6 to 48 per cent of the figures are bogus].
10 Streamlining the statistical forms and methods of data collection.
11. New means of equalizing educational opportunities.
12. Alternatives to recycle the wasted assets.
13. Socially-useful-work-centred education and its effect in improving enrolment.
14. Flexible school timings and their effects in improving enrolment and retention.

Conclusion

Priority should be given to researches of intervention type and it should be followed by effective action programmes to achieve the lofty and essential objective of universalizing elementary education. In this context what is perhaps urgently needed is a new concept of 3 R's in educational policy—RELEVANCE, RENOVATION and REFORMATION. Probably all these three would constitute the REVOLUTION which Mahatma Gandhi dreamt of. □□

Educating the Indian Masses

V. S. MATHUR

ALL FREE NATIONS of the world have moved to higher levels of prosperity and happiness through education. Education is now recognized as the lever of development as well as the strongest tool of social change. It was, therefore, natural that freedom should have focussed on increasing attention on education in India.

Historical Perspective

The beginnings of formal education, however, date back to the year 1835 when Lord Macaulay presented his famous Minute, to be reinforced further in 1854 by the Woods' Despatch. During the next about one hundred years, a number of committees and commissions were appointed by the British to give a better shape to the system; the last one being the Sargent Report of 1944-45 which for the first time recognized the need for a national system of education for the people at large to be covered in a period of 40 years.

When freedom came to India in 1947, only 15 per cent of the people of the country could read and write. A very small number could, however, be called educated in the real sense. The last 31 years have seen the appointment of three national commissions and the birth of quite a few new programmes and projects and patterns in the field of education. An Education Policy Resolution was passed by the Indian Parliament in 1968 giving a definite dimension to the Indian education. The 42nd amendment to the constitution has made a major change by shifting education from the State List to the Concurrent List. With the coming of the present national government, more fresh thinking has started and a new orientation is expected shortly.

A lot of water has flown down the bridge during the last 31 years. The annual expenditure on education has gone up to 2,500 crores from a mere about 100 crores in 1947-48. The literacy percentage has gone up to 34. The number of primary schools stands at 5 lakhs, middle schools at one lakh, secondary schools at 43 thousands, colleges at

3,500 and of universities at 120, including deemed universities. A total of more than 100 million students are studying in regular institutions. These figures are certainly eye-catching

It is, however, amazing to see that with all this expansion only about 18 per cent in the age-group 6-21 are involved in the process of education. Add to this the number of illiterate adults and that of out-of-school youth. Strong non-formal alternatives are, therefore, a must, if we want to take education to the remotest village Formal agencies can be stretched only to a certain limit and do not provide freedom of time and space.

The Twin Programmes

The problem of education for the Indian masses boils down to two main programmes. Firstly, to cover all the children in the age-group 6-14 in the shortest possible time as provided in Article 45 of the Constitution. And certainly, it is not simply a matter of enrolment It is equally a matter of content of education. It is expected that by the end of 1983, cent per cent children in this age-group are covered. We have, however, to guard against the wastage in the shape of drop-outs and repeaters.

Elementary stage will eventually involve all the children in the age-group 6-14, irrespective of caste, creed, sex or family status. It is, therefore, necessary that education at this stage is completely socialized. This may mean seriously implementing the idea of common neighbourhood schools.

This would mean that every child in the country, irrespective of his/her percentage, will compulsorily attend the junior school in the neighbourhood. As a pre-requisite, however, it is essential that all such schools are given uniformly high levels of academic standards and facilities irrespective of the fact whether the school is run by the State or by any private agency As a result the new pattern (10+2) may need to be changed to 8+4 pattern. The first eight classes should be treated as an independent strong unit. In such a situation the phenomenon of free education will naturally have to be modified and children will payfees according to the income level of their parents. The fees will only be paid by those whose parents are paying any income tax.

At the same time we must also realize that our present institutions have an urban and elitistic bias, while most of our people belong to the rural areas of society and culture There is, therefore, the need to transform the traditional school and make it need-based.

It is also necessary that the first five classes of the elementary stage should emphasize only basic subjects like the mother tongue, arithmetic and some work-experience including drawing and art. The necessary general and environmental knowledge could be given through these three subjects.

It is envisaged that a child who comes out of the first five classes should have much sounder knowledge of his language and arithmetic, besides being more aware of his surrounding. With such strong foundations, it may be easier for an average child to proceed well with the various other subjects in the ladder

At the moment there is a useless multiplicity of subjects which results only in weak foundations and chaos.

Adult Education

The second basic programme is adult education for persons between ages of 15 onwards. Necessarily this has to be of non-formal type The progress of adult literacy during the post-independence years has been rather slow. There are about 10.5 crore illiterates in the age-group 15-40 The problem did not get much attention and resources in the last five Five-Year Plans. The present government has started a massive adult education programme from 2 October 1978 for the age-group 15-35. It is proposed to cover about 100 million adults during the next five years at a cost of more than 600 crores. In the first year, 1.5 million adults will be involved through 50,000 teachers. In the fifth year the figure is expected to come up to 35 million adults and six lakh teachers, respectively. It has to be realized that literacy among women is low and this class has to be given special attention. The same goes for the labour class and the weaker segments of society.

Let us also be sure of our objectives. If the concept of education is a life-long process, then adult education has to be accepted as a vital component of any national policy duly designed to deal with the pressures of change as also to improve the quality of life. The practice of viewing adult education as a marginal activity, designed to serve a relatively small proportion of the population, can no longer hold good. In the present situation, adult literacy will have to be given top priority with an eye to environment and special education, health education and recreation. We have to evolve a clear-cut definition of 'literacy' for our country. We have also to work out the time required to reach that stage

There is also a great need for initiating an eventual expansion of research into the various aspects of adult education. Only carefully carried out research programmes will enable the future pattern and methodology to adjust effectively to the changing demands and pressures.

Library Services

It is strange that there is hardly any mention of improving library services as a part of the new educational programmes in our country While many foreign countries enacted library legislation as early as in the later half of the last century, in India it is still a target to be achieved. There is a great need to have a net-work of libraries in the country so that self-study and reading for pleasure become a part of national life. The author wishes that a good part of the large sum set aside for the Adult Education Programme during the Sixth Plan was earmarked for the development of libraries. It is also desirable that every state enacts a suitable Public Library Act as a part of their educatton policy.

Epilogue

Only as and when we have made sufficient progress in these areas, we can rightly say that the masses are being involved in the process of education. And in this sacred task the Centre, the States and the community have all to work in close collaboration and sharing of resources. Education for the masses has to be given top priority during the next 15 years or so and if this is done sincerely, a strong intellectual elite should eventually emerge to face the challenge of democracy with courage and provide proper leadership to the people.☐

Education of the Non-Attending Children at the Primary Stage

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ARTICLE 45 of the Indian Constitution directs that "the state shall provide within a period of ten years from the adoption of Constitution, free and compulsory education for all children until they complete the age of 14 years". To reach this goal, several steps have been taken by the states and the Centre. These include provision of schools, school buildings even in very small villages and habitations, training of teachers, improving teaching methods, revising curricula, etc. But in spite of these facilities, a fairly large number of children at the primary stage of education is still outside the school. Compulsory laws have had no impact on these children. While we are doing a great deal for children attending schools, very little is being done to bring the non-attending children within the fold of education.

'Non-attending children' includes two groups of children. The first group is the non-enrolled children, who have evaded enrolment drives and never attended any school The second group consists of children who were enrolled in schools and have dropped out before completing the first four or five grades as required by the law of Compulsory Education in the state.

Assuming that 30 per cent of the children in rural areas are not enrolled and of the rest 60 per cent drop out, the number of non-attending children will swell to 72 per cent, leaving 28 per cent to complete the lower primary stage of education This high percentage of non-attending children is a matter of serious concern indicating the heavy leakage in our efforts of universalization of primary education. Unless this leakage, which is prevalent in rural areas, is plugged, the universalization of primary education cannot be regarded as complete.

A specific instance of a community where the non-enrolment is complete is the Ager community in the area where the Research Centre in Rural Education is located. The Agers are salt pan workers. They are included among scheduled castes and are regarded as untouchables. No children from this community are enrolled in schools. The childern were needed to look after babies at home. The parents go out for work on salt pans and no one remains at home except the older ones to look after younger children

Thus, unless there is a radical departure in our present system of primary education, there is no possibility of roping these helpless children in the scope of our educational system. What these changes should be, are explained in the following paragraphs.

Our present primary school curriculum is a rigid one aiming at one standard rigorously for all children Children who fail to reach that standard are thrown out as failures. The standard has been fixed taking into account the requirements of secondary education and children in rural areas, subjected to a variety of handicaps, find it difficult to reach the stipulated standard. In the scheme of compulsory education where children from different environment are brought to school, we should have flexible standards so that even handicapped children may not be frustrated. The curriculum cannot be a stone-wall against which the rural child dashed his head and instead of making a dent in the curriculum, breaks his own head

Another drawback in our present curriculum for primary schools is its book-ridden nature. Books start even from Grade I A book-ridden syllabus leads to cramming, besides adding to the cost of education. Besides, the present curriculum for primary schools is unrelated to the environment of the child. The reason is the insistence on the uniformity of the curriculum all over a state. This was necessitated by a uniform examination all over the state or a part of it

The fact that the curriculum was bookish, led to absence of manual work in the curriculum. This gained impression among the villagers that school education was intended for white-collar jobs. Children going through the grind of school education not only became unfit for manual work, but also regularly shunned it as something undignified. The result was a systematic draining away of talent from villages to cities.

The defects noted above are not intended to serve as a criticism of the existing syllabus or curriculum for primary schools. They have been made to point out the unsuitability of the curriculum for non-attending children. If these non-attending children are to be brought in schools, a different syllabus, dovetailed in the existing curriculum will be necessary, so that children from the non-attending group may sometime join the regular stage schools. The curriculum for the non-attending children will have to meet the following requirements

1. Essentially the day's school-work should be of shorter duration It cannot be of six hours as at present covering the whole day The timings should be such that the children attend the schools besides attending to their duties as at present. The duration may be two to three hours a day. Vacation or long spell of holidays may be eliminated

2. It should be an environment-based syllabus so that even work done in the village can be incorporated in it. It

will not be a purely bookish syllabus.

3. It should be a progressive scheme of work There should be no detentions or failures in it A child's progress will be measured by the number of activities done or assignments completed within a specified period.

4. Instructional programmes would correlate with activities done in the environment including work. In other words, knowledge will be work-centred. Thus knowledge in school subjects will be a function of the activities organized in the school. Even the skills in the three R's will be based on the activities and necessitated by them. The idea of teaching would thus correspond to the idea of correlated teaching in basic education. In basic education all teaching would be activity-based. It may be from a productive craft, or the social and physical environment of the child. Sometimes it is directly connected with the activity and other times the activity is in the background.

For want of a better name, this curriculum for non-attending children can be called as 'non-formal curriculum'. The non-formal curriculum will have roots in some activity, preferably a productive activity and the physical and social environments of children. If no productive activity is available, only the environments may be used as the base for imparting information.

When craft or gardening becomes the base of knowledge in the non-formal curriculum, the idea is not to give vocational or specialized education through it It becomes an integral part of general education. Bertrand Russell has some pertinent remarks on the primary school curriculum

> When we consider what an adult should know, we soon realize that there are things which everybody ought to know, and other things which it is necessary that some should know, though others need not. Some must know medicine, but for the bulk of mankind it is sufficient to have an elementary knowledge of physiology and hygiene. Some must know higher mathematics, but the bare elements suffice for those to whom mathematics is distasteful. Some should know how to play the trombone, but mercifully it is not necessary that every school child should practise this instrument. In the main, things taught at school before the age of fourteen should be among those that everyone ought to know; apart from exceptional cases, specialization ought to come later.

These fundamentals should be kept in mind while framing the non-formal curriculum for the non-attending school children. A workable pattern in this direction was drawn up by the former Maharashtra Government for basic schools, under the title 'Scheme of activity programme for basic schools'

The problem of implementation of the curriculum and the organization of the classes is perhaps the most difficult part of the scheme. Running schools for children willing to join schools is comparatively an easy proposition, but to bring children who are unwilling to come to school and have been accustomed to idleness, is a very difficult task. Several problems are likely to crop up and they need to be successfully tackled. A careful survey of the area is a must before any move is taken to run schools for non-attending children The survey will reveal the extent of such children in the area and location of schools for them, and it will also throw light on the occupations of these children and the willingness of parents to send their children to school Besides, it will show which time of the day would suit the boys.

Next to survey, the agency which will undertake the education of the non-attending children is to be considered. As far as possible, owing to the difficulty of the nature of the work, the state should leave the matter to private voluntary agencies who offer to take up such work. It is doubtful how far the scheme will succeed within the rigid framework or state administration. The state should concentrate on regular schools and improve their conditions so that they may attract and hold more children. If suitable facilities are provided, voluntary agencies may undertake such work.

One of the ways in which such schools can be assisted will be grant-in-aid The schools may be recognized on par with private primary schools and aided in the same manner as per rules in the state. Children of these schools should be allowed to shift to regular schools on the basis of their achievements. Equipment grant for teaching aids and building grant may be given to these schools. Where suitable classrooms are not available, the schools may use the departmental schools by shifts.

Along with aid, the question of supervision and evaluation of work will come up The departmental officers should scrutinize the curriculum framed for these schools and also their implementation. An annual evaluation of the progress of pupils should be done to enable the pupils and their parents to know how far children are progressing. Some of the children can then shift to regular schools in the main-stream. The schools will work on the pattern of non-graded single-teacher schools. They will maintain progress reports for all students, brought up-to-date after the completion of assignments or projects. The schools will have a small library and the reading material will be presented on charts which will be filed and made available to pupils.

Steps in the above direction are essential, if the scheme of universalization of education for all children is to be completed. Probably after some time such schools will not be necessary The curriculum will have its impact on the normal school curriculum for improvement. □□

Innovations in Elementary Education in Madhya Pradesh

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In all developing countries today the demand is for the type of education which can be effective in overcoming hunger, poverty, disease and ignorance In these countries, it has been proclaimed that the chief purpose of all education is to stimulate and arouse people to effect changes in their lives for making a good living and living a good life. The school must play a dynamic role in the improvement of community living, it cannot divorce itself from the immediate problems surrounding the children There is an insistent demand that education should become a constant interaction between the school and the community, a cooperative programme which utilizes efforts and abilities of all towards the solution of common problems.

The community school seeks to marshall and utilize all the potentialities, resources and facilities of the community for its development At the same time, the school endeavours to enrich the school curriculum by liberal utilization of the human and material resources of the community. The community school has two distinct purposes to give service to the entire community, and to discover, develop and use the resources of the community for the total educational programme for the children and adults. In the community school, the programme is geared to the real problems and needs as the child experiences them in the community.

Despite two decades of valiant efforts to expand formal schooling we discover that only a meagre fraction of boys and girls are getting a full and effective primary schooling in the great bulk of rural areas where the majority of people live. The unschooled and the early drop-outs comprising the great majority of children are left largely to fend for themselves. Therefore in every developing country serious questions have been raised about the efficacy of the formal system of education. In fact, the rural youth has revolted against such schooling and new strategies are being planned.

After several years of deliberations, efforts are being made in India to meet all new challenges in education. The first and foremost task is to take education to everyone up to the age of 14 years, although life-long education is not to be neglected. In our National Plan, the expansion of elementary education has been placed in the 'minimum needs programme sector' and every state government has been given the assurance that the requirements for the expansion of school system for imparting elementary education will receive the fullest consideration and support of the Government of India. But it is being realized that we shall not be able to solve the problem only through the schools. Therefore, the scheme of non-formal education has been drawn up to supplement the school system. The multi-point entry, the functional literacy programme, part-time and correspondence education have been implemented for different age-groups of learners.

The teacher has a key role to play and he has to make every effort to see that the enrolment drive succeeds. He has also to ensure that the drop-out rate goes down; he must hold and sustain the interest of the learners by adopting newer methods of teaching and use of a variety of teaching aids. The NCERT supported by the State Institute of Education is helping the teachers to work out these heme of non-formal education. Hopefully the school system and non-formal system would work cooperatively and the school would become truly a centre of community education and of community life.

A survey of the general literature on development in many developing countries indicates that high claims are made in their preambles of national plans that high priority is being accorded to rural development But it is easy to discern in those plans that the urban sector has typically received top priority in actual budgetary allocations, on the theory that progress in cities would eventually 'trickle down' to the rural areas. But this spread effect has proved to be very weak In many instances there is evidence that the development gap between urban and rural populations is growing and presenting numerous new problems.

Minimum Essential Learning Needs

Philip H. Coombs, Roy C. Prosser, Manzoor Ahmed and Barbara Baired Israel have produced for the International Council for Educational Development an excellent report, *New Paths to Learning for Rural Children and Youth* (1973). This report has considered in depth the educational requirements of children and youth in rural areas. They have proposed minimum essential learning needs which deserve careful consideration by all teachers and planners. It must be emphasized that the assertion that every child has a 'right' to an education has little practical meaning unless this 'right' is translated into terms of some 'minimum package' of attitudes, skills and knowledge that every young person in a given society will require for an effective and satisfying adulthood. Hopefully many young people will achieve more than this minimum. But any society guided by democratic ideals must give a high priority to securing at least this minimum for all Unless this is done it would perpetually create a privileged elite at the sacrifice of everyone else

This 'minimum package' would doubtless differ considerably from one rural area to another between and within countries to allow for great variations in social, economic and political development. Despite the very diverse needs and environment of different rural societies, there should be general agreement among most educational leaders. World leaders of education should come to an agreement and declare the 'minimum package' in the 'world perspective'. *New Paths to Learning* recommends the following six elements as an illustration of 'minimum package' .

1 Positive attitude towards cooperation with and help to one's family and fellowmen, toward work and community and national development, and not least of all towards continued learning and towards the development of ethical values. Such attitudes should find concrete expression in one's daily behaviour in the family and the community at work and all learning environments
2. Fundamental literacy and numeracy, sufficient to (i) read with comprehension a national newspaper or magazine, useful agricultural, health and other 'how-to-do-it' bulletins or manufacturers' instruction sheets; (ii) write a legible letter to, for example, a friend or to a government bureau requesting information; and (iii) handle important common computations such as measurement of land and buildings, calculation of agricultural input costs and revenues, interest charges on credit and rental rate on land
3. A scientific outlook and an elementary understanding of the process of nature in the particular area, as they pertain, for example, to health and sanitation, to raising crops and animals, to nutrition, food storage and preparation, and to the environment and its protection
4 Functional knowledge and skills for raising a family and operating a household, including the essential elements of protecting family health, family planning, appropriate child care, nutrition and sanitation, cultural activities and recreation, care of the injured and sick, intelligent shopping and use of money, making clothes and other consumption goods, house repair and environmental, improvements and growing and preserving food for family consumption.
5. Functional knowlege and skills for earning a living, including not only the skills required for a particular local occupation, but also a knowledge of a variety of locally useful common skills for agriculture and non-farm use.
6. Functional knowledge and skills for civic participation, including some knowledge of national and local history and ideology and understanding of one's society, awareness of government structure and functions, taxes and public expenditures, available social services; rights and obligations of individual citizens; principles, aims and functioning of coopera-

tives and of local voluntary associations.

Innovations in Elementary Education

All of us who work directly or indirectly for elementary education must accept new challenges and make good use of the opportunities and resources for building a strong foundation for elementary education.

We are all aware of the Unicef Project I for Science Education which was started in 1972. In Madhya Pradesh the Unicef Science Project inspired us to launch an apprehensive state-wide plan of science education for elementary schools in 1974. By now we have trained most of our elementary teachers in science. Several crores of rupees have been spent in this scheme and science is being taught to all children in our elementary schools. But this is only a beginning and we have a long way to go before we can say that our students are taking full advantage of science and mathematics.

It is unfortunate that the full import of the above Unicef Project and the state's Elementary Science Education Project has not yet been realized by all our teachers and schools. There is a tendency even now to push it aside by saying "It is for science teachers". But now the Unicef has come up with two more projects — (i) Primary Education Curricular Renewal (PECR) and (ii) Developmental Activities in Community Education and Participation (DACEP). These projects have been accepted by the State Government and they are being financed by the Unicef These projects form part of the Master Plan for the Unicef-assisted programmes in our Fifth Five Year Plan. It must be emphasized that these projects have been carefully designed to promote innovations in elementary education and they envisage unorthodox and radical approaches.

The Unicef Project 2 aims at developing innovative curriculum, related instructional material and techniques which could meet the educational needs of a large number of children and not merely a selected group It must be clearly understood that expansion of educational facilities must be in harmony with qualitative renewal and development of the school curriculum. There is no better way of reducing the huge wastage and stagnation in elementary schools. This new approach demands that the curriculum be adjusted to the life-style of the child and to the socio-economic opportunities available to him. It should be based on children's life, needs and problems of everyday life in the community: nutrition, health, hygiene, sanitation and civic participation. All efforts are needed to localize the curriculum and sort out the needs of the large majority of children from the under-privileged sections of the society.

The Unicef Project 3 aims at developing and testing new types of educational needs of a large group of children who are partially or totally deprived of any form of education. The quantum of wastage and stagnation in our elementary schools is alarming and one reason for this is that education is not meaningful. This Project has, therefore, added a new dimension that children's education, in addition to being meaningful, must proceed concurrently with adult education and with gradual changes and modifications of their socio-economic environment. Unicef believes that for the success of a development activity like education, involvement and participation of the community are essential. Educating the children alone has failed to give the desired results of socio-economic changes. The entire community has to be educated and involved. Hence this project envisages two-pronged approach — community education and community participation — in education for all kinds of groups of children and youths not approached by education at present.

The expansion of education in India has no parallel in our past. Madhya Pradesh has done remarkably well and today there are 55 lakh children in schools, 1.83 lakh teachers, 60,000 schools and the state's annual budget is more than 100 crores. The state has only two problems there are more children out of school than in the school and there is an alarming quantum of wastage and stagnation in elementary schools.

The Asian Programme of Educational Innovation for Development is designed as a cooperative action programme, and the activities under the programme will be planned and developed cooperatively by the participating member-states. The main objective of the programme is to stimulate ideas, techniques, and organizational structures with a view to promoting innovative ways to deal with the problems of educational development and change in the member-states. To this end, the long-range objective of the programme are :

1. To cooperate with and assist the member-states in their endeavour to evolve their policies and programmes so as to accompany the qualitative growth of the system by continuing qualitative development and a responsiveness to new economic and social needs
2. To assist the member-states in creating and strengthening national capabilities in terms of personnel, techniques and management capacity for development and use of innovation in education linked to the needs of national development.
3. To promote inter-country transfer of experience and techniques in the field of educational innovation and reform.
4. To promote understanding of the process and practices of educational innovation and awareness of the possibilities offered by systematic experimentation and development in the resolution of the problems of educational growth and change
5. To identify and stimulate innovative activities and promote co-operative action among member-states for the exchange and sharing of experiences.

In order to achieve these objectives, one must keep in mind that the process set in motion by innovation, if it is genuine, is a dynamic continuing one, involving not only progressive development within the original area, but also the unfolding of new areas and new possibilities for which flexibility in programming is essential. Programmes should be problem-centred and action-oriented. The selection of activities should take into account the system as a whole and its key variables, concentrating on these through which innovative influence can have a multiplier effect in the system and which lend themselves to international cooperation and transfer, preference should be given to activities in which a number of member-states can participate.

Accordingly, the programme for the next four to five years is focussed on the following major development problems in the Asian region.

1. Educational management, with a view to adapting and developing new management techniques applicable to education, and to preparing personnel for the management of educational innovation.
2. Curriculum development, with a view to adapting and developing techniques of curriculum analysis and development in order to make curriculum and instruction relevant to national conditions.
3. Educational technology, with a view to adapting new educational media, materials and methods, and the use of mass-media to improve the quality of formal and non-formal education in particular, to promote the systematic analysis of means and methods in education and the use of appropriate techniques ranging from programmed instruction and individualized learning and teaching techniques to mass distribution approaches involving broadcasting, corresponding study and the like.
4. New methods and techniques in teacher-training, with a view to developing new methods in teacher-training in conjunction with the changing roles of the teacher, and to articulating teacher-training to new curriculum, instructional methods and technologies.
5. Science education, with a view to developing innovative programmes and techniques, supported by systematic experimentation to improve the quality of both in school and out-of-school science education, and to stimulate the development and production of science equipment.
6. Development of new structures and orientation, with a view to promoting experimentation in educational structures in which formal and non-formal forms of education are more closely articulated.

The Task Ahead

If we have to realize our aspirations and expand elementary education in the state we must give priority to the following plan of action.

1. Firstly, we have to collect information about educational innovations and new practices in our schools. In every district there are a few pioneering schools where dedicated and enlightened teachers are breaking new ground. Immediate steps are needed to collect information and diffuse it to all schools in the state.

2. All colleges of education should set up departments of elementary education and undertake studies, researches, publication for the benefit of elementary school teachers and Assistant District Inspectors of schools within their jurisdiction.

3. All universities of the state should take action for revising B.Ed. and M.Ed. syllabi to incorporate study of problems and new developments of elementary education in India and abroad. They should organize seminars and courses for educational planners, supervisors and administrators. The UGC and Uchha Shiksha Ayog should give up the orthodox approach of being responsible only for higher education. They should accept responsibility for strengthening a modernizing school education in their own interest and help in relating education to national needs and aspirations

4. All Basic Training Institutions in

the state should become dynamic centres of promoting innovations in elementary schools in their region. The State Government should provide staff, budget and more resources to enable them to perform their duties satisfactorily.

5 Every Divisional Suprintendent of Education and District Education Office in the state should set up a Centre for Educational Innovations and it should function as the educational wing of the divisional and district office. This centre should organize conferences, seminars, discussions, etc. for local teachers and motivate them for new approaches in their work for meeting the emerging needs of our children

6. Outstanding teachers from selected districts should be sent for further education in the state-level institutions, national institutions and even to neighbouring countries where innovations are being carried out in elementary schools.

7 A journal on elementary education should be published in Hindi by the State Department of Education for promoting knowledge of innovations and also for providing a forum for teachers to exchange news and views. In order to have full impact, this journal should be a 'package of service' for teachers' professional growth It should be mailed to every teacher involved irrespective of the cost in this new venture Let the teacher feel that he is important and somebody who is interested in him is sending 'package' for him and assisting him to do his job better.

8. The Centre for Educational Innovations at the Government College of Education, Jabalpur, should be given the responsibility of assisting in all the above assignments regarding innovations in elementary education

9. The SIE should organize conferences of elementary teachers in each district so that all the teachers in the state may become familiar with our new approaches.

10. Training-cum-Production Centre should be set up in each BTI and college of education for promoting work-experience. □□

On Making the Single-Teacher Schools of Tripura Viable Educational Institutions

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TRIPURA is striving hard to fulfil the task of universalizing primary education. At present it has about 1,500 junior basic schools for its 17 lakh inhabitants. In view of the peculiar geographical condition of the State, with two-thirds of the land covered by six major hills sprawling from north to south and their branches, it is not surprising that about 60 per cent of these schools are single-teacher schools Most of its habitations are small in size. An idea of the size of habitations in the State can be obtained from the following Table showing the distribution of rural habitations according to population slabs.

Table

5000 & above	2000 — 4999	1000 — 1999	500 — 999	400 — 499	300 — 399	200 — 299	100 — 199	Below 100	Total
1	16	80	249	122	173	320	941	3287	5189

The figures relate to the estimate for 1966 and is quoted from the Second All India Educational Survey conducted by the NCERT.

It is just probable that the population of these habitations has increased since, yet the overall character of the habitations must not have changed remarkably

Assuming that 13 per cent of any population belongs to the age-group 6-11, a total number of 4,843 habitations constituting 93 per cent of the habitations will have less than 65 children of the primary school-going age. Some of these habitations are near one another but most of these are wide apart requiring a school of its own. Now, not all of the children of the school-going age will go to schools unless education is made compulsory. Many of them will remain at home for what may be described as parental exploitation of child labour. Girls are engaged by the parents in choie including cooking and caring of the siblings. Boys are required to engage themselves in farm work, collection of forest materials, rearing cattle, cutting grass for selling, catching fish and working in tea stalls or serving as domestic servants. The cultural background of the parents is another factor that prevents the children from going to schools. Even if the parents are somehow persuaded to enrol their wards and send them to the schools a considerable fall in the attendance starts appearing after about a month or two of enrolment. This happens just because most of the parents do not feel the necessity of sending the children to schools. Thus the average attendance in most of the schools of the habitations having population below 500 remains much below 40. Economics of education does not justify provision of more than one teacher in these schools.

Again, there are some educationally conscious parents who complain that because the school has only one teacher the standard of teaching there is very low and hence it is useless, in fact a waste of time, to send the children to school. The State Government, on the other hand, perhaps finding the attendance to be poor, does not feel enthused to provide another teacher in that school. The school, therefore, remains a single-teacher school. This is a vicious cycle.

Everybody agrees that the single-teacher schools are not the ideal type of schools to be encouraged. It is not an easy task for any one teacher to teach all the subjects in all the classes on the same day Yet in the present state of our socio-economic condition it will not be realistic to expect that all the single-teacher schools be converted into multi-teacher schools. In fact, their number is likely to increase in future New primary schools (1500) are expected to come up in the State during the Sixth Five-Year Plan Almost all of them will be in the habitations with a population ranging from 200 to 300. Naturally under this class almost all the schools are likely to be single-teacher schools These schools will push up the number and percentage of single-teacher schools in the State.

Multiple-Class Teaching

Now let us consider the question of organization of teaching in this type of schools The Education Department of the Government of Tripura recommends a continuous shift system for the single-teacher schools where Classes I and II are to be taught in the first session and Classes III to V in the second session with a period for collective activity in between. In this period all the classes are to engage themselves in activities like prayer, cleanliness, health parade, creative activity, etc.

In such multiple-class teaching, the teacher gives direct teaching to one of the classes for some time, during which other classes are kept engaged in some assignment or self-study After his direct teaching in the former class is over, he gives assignment to that class and moves to another class. In that class he first checks the assignment given earlier and then takes up direct teaching with them. When this is over he moves to the third class, if there is any. If not, he comes back the former class. This rhythm of direct teaching and assignment/self-study goes on alternately in each class during both the shifts.

Personal experience of the author in multiple-class teaching tells that the teacher here is faced with two main difficulties. Firstly, the time that he has at his disposal for direct teaching is too short. Consequently his progress is too slow in comparison with the demands of the syllabus. For quick progress he cannot depend on home study either Home study for small children of a primary school is psychologically unsound. Most of the children of today's primary schools being first-generation learners have none to help them at home. Most of the parents are too poor to provide children with spare time to study and buy kerosene to burn the lamp. His second problem is regarding assignment for self-study. The teacher does not find enough time to properly check the assignments given them earlier for doing by themselves. Moreover it is a problem to suggest an assignment long enough to cover the entire period of absence of the teacher in that class. As soon as the children complete the task they start making noise. On the other hand, if the assignment is lengthy there may be points difficult enough to call for the teacher's help. In such a situation also the children being unable to do the job create problems of discipline.

A creative teacher may be able to devise an effective teaching strategy even in the face of these difficulties. He may alternately give assignment and direct teaching to different classes and in this way go on working for five hours a day with two breakes of 15 minutes each as suggested by the Education Department of the Government of Tripura. But the question arises : Are all our teachers capable enough to shoulder such a heavy responsibility ? In a phase of expansion of educational facilities a large number of teachers are sure to be recruited, who are much below the required level of ability. Moreover, recruitments now-a-days are often made on the basis of social demands rather than on the merit of the candidates. Also, we cannot yet offer an attractive scale of pay to invite our promising young men and women to the profession of teaching. But we have no other way except to be contented with only the average and below-average type of people who have neither the requisite knowledge of the subject nor command over the methodology of teaching to run our single-teacher schools.

The crucial question, therefore, before those who are interested with the progress of primary education in the State is how to make the single-teacher schools viable educational institutions; how to make them more effective so that they can serve the purpose for which they were established. This can only be done if the teacher of these schools be provided with some special assistance which will lessen the need of his direct attention; any device which would enable the children to progress through self-study with only minimum assistance from the teacher.

Programmed Learning

Programmed learning seems to hold a good promise in this regard. Essentially being an auto-instructional device, programmed learning appears to be well suited to lessen the burden of the teachers and at the same time help to maintain steady progress of the children. Experts in general are almost unanimous with the view that programmed learning is an effective method. If that be so there is really a case for trying the technique in our single teacher schools and see how it works. Research, therefore, is necessary to determine :

1. whether programmed learning can be suitable for teaching all the

subjects in all the classes of the primary schools (Classes I-V) in the State;

2. whether programmed learning will be more effective than the traditional methods followed at present; and
3. the most suitable style of programming diffrent subjects.

A decision, if at all taken, to use the method of programmed learning extensively in the single-teacher schools of Tripura will call for a considerable amount of preparatory work. There will have to be a central agency in the State consisting of the subject-matter specialists and programmers which would develop the programmed texts. They will have to go through different steps, viz. (i) analyzing the content of learning, (ii) spelling out the objectives of instruction into observable behavioural terms, (iii) writing down the frames, (iv) trying out and editing of the programmed text, (v) evaluation of the text, and (vi) preparing the final draft.

As the concept of programmed instruction is new to our teachers, they will require a short-term training to make them familiar with its principles and techniques of use. The teachers will also have to be provided with teachers' guides to help them in using the programmed texts effectively.

As the process of developing the final draft of the programme will take some time, multiple-class teaching through conventional methods will have to be continued till then In the meantime the teachers should be helped by a workable time-table suggesting the best combination of subjects for teaching in different elasses in different periods The earlier belief that subjects vary in their fatigue value and should be placed in the timetable in such a way that subjects having higher fatigue value are taught in the earlier part of the day have been proved to have no basis. Following a proper method any subject can be taught in any period of the day. Yet one thing is true that subjects differ in their requirements of the direct attention on the part of the teacher. In the multiple class teaching the combination of subjects is likely to make a difference in the effectiveness of teaching. It is necessary, therefore, to experimentally determine what should be the ideal combination of subjects in different classes in different periods. For instance, should mother tongue be taught in Classes III-V in the same period ? Or, should mother tongue in one class be taught in combination with mathematics in another class and English in still another ? Should social studies in Class V be taught with English in Class IV and mother tongue in Class III ?

The Syllabus

Another aspect of elementary education deserves immediate and serious consideration. As already stated lack of time is a serious constraint before the teacher As the teacher has to deal with two or three classes at a time, he finds it difficult to cover the prescribed syllabus in its entirety. On the other hand, the inspecting officers press him hard to complete the syllabus from the beginning to the end within a given period of time. These pulls from the two opposite directions compel the teacher to give only a superficial treatment to the subjects. This is more harmful than leaving the syllabus uncovered Because, even if half the syllabus is covered thoroughly at least that much will be learnt by the children effectively. An attempt to hurry up with the syllabus leaves the child in a state where he has not learnt anything at all. Weakness in the earlier concepts acts as a hindrance towards grasping new concepts. He remains backward throughout.

It is, therefore, necessary to review the syllabus thoroughly to see if its volume can be reduced, keeping only the essentials that are necessary for achieving the desired level of development in different directions. It is also possible to reorient the syllabus and make it more related to the life situation of the children This will not only help motivating the children to learn but also make things easy for him to grasp. Tripura being a hilly agrarian State, people mostly depend on agriculture, collection of forest materials, fisheries, etc. for their livelihood. The syllabus should be so oriented that it is in keeping with the day-to-day experience of the children. It is our sacred duty to fulfil our commitment to the nation regarding universalization of primary education. And in this process setting up of single-teacher schools is inevitable.

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Educational News

The educational system must draw upon the rich cultural heritage of each country : Dr. Chunder

The 20th session of the General Conference of Unesco was held in Paris from 24 October to 28 November 1978. The following is an address by Dr P C. Chunder, Minister for Education, Social Welfare and Culture, who led the Indian Delegation.

I JOIN MY distinguished colleagues in warmly congratulating you, Mr. President, on your election to the high office of the President of this Conference. We are confident that under your able and wise guidance, this Conference will prove successful in its deliberations and mark an eventful turn in the functioning of Unesco. We also congratulate and welcome other office-bearers of this august Conference. We would like on this occasion to express our deep admiration and appreciation of the sagacious leadership of the outgoing President We join our colleagues in welcoming most heartily the delegates of the new member States—Popular Republic of Angola, Republic of Cape Verde, Cororos, and Swaziland. Their presence among us gives us further assurance of the ultimate success of the efforts of Unesco to evolve a peaceful universal, international community We also hope that Dominica and Namibia will soon join us.

Mr. President, the world community has been recently much concerned about the need to establish a new international economic order. This expression signifies a new structure of a relationships and approach to international exchanges based on equality, mutual benefit, justice and a greater awareness of the need for ameliorating the conditions of millions of people who suffer from want and privation. The concept has now been set in its wider perspective of man's cultural and social requirements, and it is indeed a new international human order that we should all be striving to bring about. Unesco has done valuable work in this connection in its programmes of reflection, analysis and research, and has taken positive action for the promotion of the new international economic order. We are pleased to see that this will be one of the items on the agenda of the General Conference, and we trust the Conference will give it its most earnest attention.

However, in spite of considerable progress that has been achieved in the struggle against colonialism and racism, the pernicious doctrines of racial discrimination still hold sway in some parts of the world We in India are happy to see that Unesco is playing its proper role in the fight against racism and apartheid, The Declaration on Race is a major landmark in the rallying of forces in this struggle and it is our hope that, with appropriate amendments, where necessary, this Declaration will be unanimously adopted at this General Conference.

We would like to see the activities of this organization extended at this Conference to the people of Namibia who are heroically struggling against alien oppression, and the government and the people of India regard this as an indication that Namibia will very soon attain genuine national independence.

A primary task of Unesco is to prepare the mental climate for transition to total disarmament and the creation of a proper atmosphere for all men and women to enjoy the full amplitude of human rights; and we are happy to see that the programme for the next biennium places considerable stress on the furtherance of peace

The role of communication in development has been well appreciated by Unesco. It is only an effective communication policy that can enable Unesco to realize its ideal of wide diffusion of education, and culture for justice, liberty and peace. India has always stood for international equality and understanding and welcomes the efforts of the Director-General in bringing before this Conference a draft declaration on the contribution of mass media to the promotion of greater understanding among nations. The Press in our country is now free and fearless. Our Radio and Television are on the point of acquiring substantial autonomy. We have undertaken many experiments and projects to involve mass media in national development. Our broad support to the idea of the new information order arises out of our belief in the importance of information for public participation and decision-making and resolution of tensions.

In the field of education, democratization of education and improvement of quality have been the two main directions of Unesco's activities With lifelong learning as the ultimate objective, Unesco is encouraging its members to reach education to the entire population—children and adults through formal and non-formal systems At the same time, Unesco is also concerned with the quality of education. Education policies, it has recognized, must be closely linked with the culture of the people and become a part of the socio-economic development of the country Education must at all times be relevant and functional These ideals have permeated to many countries in the world and all the member-countries assembled here are in one way or the other striving to reach these goals In consonance with the policies of Unesco in our own country, Mr. President, we have given the highest priority to universalization of literacy and reform of contents of education. We have, since October 2 last, launched a massive National Adult Education Programme with the objective of reaching about 100 million adults in the next five years. we have also drawn up programmes of formal and non-formal education for universalizing elementary education for our children in the age-group 6-14 in the next 10 years—programmes which will embrace 45 million children in addition to the 90 million who are already in schools. We are revising the contents of education as well. Education at all stages must be based upon the best in our tradition and culture and must remain relevant and functional. The concept of socially useful productive work mainly influenced by the educational philosophy of Mahatma Gandhi will henceforth be an integral part of our system, development of the total personality of the individual, the promotion of social and moral values, and the inculcation of attitudes and skills essential to a democratic, secular and socialist society. In the words of our great poet, Rabindra Nath Tagore, "That education is true, which acknowledges the mind to be a living thing and, therefore, stimulates it to give out more in quality and quantity than is imparted to it from outside". This is the standard that we have set for ourselves

The increasing importance that Unesco attaches to the development of culture is fully justified The educational system must draw upon the rich cultural heritage of each country. The cultural identity of the people must be recognized and respected. The best of values and traditions remaining alive in the culture of the people must be woven into the educational system The efforts of Unesco to identify and strengthen the institutions of culture, both traditional and contemporary, and for preservation and documentation of all material of cultural heritage need to be fully supported. We, in our country, recognize with pride the rich cultural diversity among our people and it will be our endeavour to preserve this diversity while acknowledging the basic unity which holds them together

It goes to the credit of Unesco that it has attempted to humanize science and harness it to the service of man Thanks to Unesco, science has become an integral part of education at the school stage. The efforts of Unesco are rightly tuned to the problem of transfer of technology and development of appropriate and alternate technologies. In India, our objective is promotion of self-reliance and endogenous development Science must provide a new philosophy of action to enable man to rise to his full stature. We in India are in agreement with the broad policies of Unesco and are involved in the programmes initiated by this organization. In our own country, we have a Science and Technology policy which seeks to promote pure and applied sciences and to secure for the people, especially those in rural areas, the benefits that can accrue from the acquisition and application of scientific knowledge for removal of unemployment, provision of basic needs and enhancement of the quality of life, and to enable them to realize their full human potential.

Coming to the programmes included in the budget, the allocation of resources for the various Unesco programmes may require a second look It may be worthwhile to reduce administrative and overhead costs to the minimum and divert the savings thus made available to valuable programmes in the field of education and science. It may also be possible to step up the allocations gradually for the various sectors of programmes by effecting economy elsewhere. Some simplification of formalities and procedure may save time and expenses.

We are glad to observe the continuing efforts made by Unesco for decentralization of its work. The regional and sub-regional Conferences of National Commissions have highlighted the need for such decentralization, and the importance of building up regional and national competence. Decentralization will not merely reduce costs but will also provide for greater efficiency and promotion of self-reliance on the part of nations and regions. We must also mention here the excellent work done by the Regional Offices in our region in India and Bangkok. These deserve to be encouraged and developed further. We do hope to see more definite and purposive action in this direction by the Director-General and the Executive Board.

We are glad to note the emphasis on programmes of endogenous development and stengthening of national and local infrastructures. We believe that these efforts require to be further strengthened and pursued vigorously. A major objective of Unesco might be to develop on a planned basis national competence in various areas of programmes.

We greatly appreciate and admire the efforts of the Director-General and his colleagues in infusing into the functioning of Unesco a spirit of dedication and earnestness. The 19th Conference marked a definite change in the approach of Unesco with the presentation of the *Medium Term Plan*—an excellent document — which has attempted to interpret the ideals of Unesco into a concrete programme of action over a period which permits effective planning. The present document before us indicating the programmes for the biennium 1979-1980 is definitely an improvement on the earlier documents, it presents the entire operations in a very lucid manner. The Director-General, the Executive Board and the Secretariat deserve our warmest appreciation and fullest support for their continuous endeavour to translate the ideals of Unesco into concrete programmes of action.

Mr. President, as we look back, the achievements of Unesco are indeed substantial, but when we look ahead, its tasks appear to be hard and outlook difficult. It is perhaps to Unesco, more than any other U. N. Organisation, that the nations can now turn for succour, relief, guidance and counsel. In a sense, Unesco is the brains-trust of the world. I can do no better than quote from the *Medium Term Plan* : "Unesco with its general responsibility for the promotion of spiritual values is also empowered to act as a centre for humanistic and ethical reflection and to go beyond merely technical consideration viewing the problems of development in terms of human significance"

The founding principles of Unesco have observed that lasting peace cannot be founded upon the political and economic arrangements of governments and must be built upon the intellectual and moral solidarity of mankind. We still see the forces of war and intimidation in action. We still painfully encounter clear and blatant evidence of racial discrimination and apartheid. Our rejection of the doctrine of inequality of men and races, castes, colours and creeds has not yet become a reality. Economic disparities and exploitation and covert domination of weaker countries by the economically more advanced still remain facts of life. The present state of education often fails to check these menaces. Science often becomes a handmaiden of the destructive forces. Culture often fails to provide aesthetic pleasure which ennobles mind. Obviously, a time has come for us to take stock of the position and look for new directions and it is in this light that we must examine the adequacy, and the purpose of present programmes of Unesco. We have long felt that mere material advancement or philosophy of consumerism may prove inadequate in dealing with human problems. One can see the evidence of this in many prosperous societies Increasingly, many people in these societies are rejecting the values founded on material growth and are turning towards intellectual and moral values Obviously, a society which is exclusively concerned with its physical well-being and is always looking outward to see how it would promote its material standards only may not be able to attain the enlightenment needed to lead a peaceful and non-aggressive life. A society which looks inwards, which analyses its own inadequacies and incompetences and seeks to mould its character and outlook to promote self-reliance, goodwill and austerity, may be better equipped to deal with the problems of modern times. Indian philosophy has always held that the essential problem of man does not lie in his surroundings but in himself. He that is content does not seek to pursue material comforts or goods, beyond a point of need. He also does not see the need to force himself on others with a view to influencing their decision or response This, however, does not reflect a negative attitude of mind. It is a call for positive action without imposing on self or others. It is wrong to think that Indian wise men of olden times invariably encouraged renunciation of the world. On the contrary, an influential section of these philosophers stood for an integrated, balanced, way of life. These sages spoke of *Trivarga* — a group of three objectives of life — *Dharma* (moral), *Artha* (material) and *Kama* (sensual), each to be pursued in consonance with the other two. The great Indian epic, the *Mahabharata*, even holds *Dharmarthakamah samameva sevyah/yo hyekasaktah sa jano jaghanyah* (moral, material and sensual objectives are to be pursued with equal emphasis A person who is addicted to one objective only is despicable). Kautilya, the well-known political author of ancient India, echoes the same attitude *Samam va trivargam-avyonyanubandham* (three objectives are to be pursued equally or in consonance with one another). 'If anyone is pursued excessively (*atyasevita*), it harms not only itself, but also the other two objectives'' In substance, ancient Indian wise men have advised us to tamper material and sensual pursuits with morality, without due recourse to moral values, material and sensual activities will be self-defeating All major religions have stressed the need for discipline, self-control and other moral virtues. I think the time has come for ourselves in Unesco to examine how far our objectives in the field of education and culture promote moral excellence based upon truth, discipline, self-control and love of mankind Our achievements in the democratization of education, diffusion of culture, exchange of ideas and knowledge, harnessing of all the forces of science in the service of humanity, remarkable as they are, have been overshadowed, it seems to me, by our general failure to develop intellectual and moral standards It is perhaps to the promotion of strong intellectual and moral solidarity that we should now turn our attention. It is this which Mahatma Gandhi in our country characterized as the search for truth and fearlessness. While we have correctly held that the educational system in each country should be relevant to its needs and should also be attuned to its material development, there are certain values which are common to the society as a whole which need to be recognized, incorporated and highlighted in all systems of education all over the world. These may ultimately contribute to the development of a society which will be free from strife and competition and which will believe in peaceful co-existence. Unesco is the organization which can contribute in a fundamental manner to the promotion of these values.

A modern Bengali Peot, Satyen Datta, exclaimed :

Jagat judiya ache ek jati
se jatir nam manus jati,
Ek prithivir staney palita
Ek-e ravi sasi moder sathi

(There is only one race covering the World. The name of that race is Man. Nurtured on the breast of the same Mother Earth. The same Sun and the Moon are our companions.)

Let us, therefore, unite to cement the unity of the human race and uphold the dignity of Man.

Second bi-annual conference of ERIC held at NCERT campus on 4 December 1978

INAUGURAL SPEECH

Prof. Shib K. Mitra
Director, NCERT

FRIENDS :

I extend to you, on behalf of the NCERT, a cordial welcome to this bi-annual Conference of the Educational Research and Innovation Committee of the NCERT. This is the second time that such a conference is being held. We had a conference two years ago, when we devoted time to discuss priorities in the field of educational research. Members of the ERIC will recollect that the committee had appointed three task forces representing the three key areas of research as identified by the committee itself. The task forces were set up to spell out specific priorities of research within these broad areas In addition to considering the reports of the task forces, there was a discussion on the kind of work done during the previous year and a year before by the persons who received grants from the ERIC. There was also a discussion on their reports of research, methodological issues, as well as other issues.

There has been a new development in the field of education in India today. Identification of priorities in the field of education has been made at the national level by the Government, and these priorities, as you know, include, among others, the universalization of elementary and adult education We feel, therefore, that this year's bi-annual conference would like to devote exclusive attention to what research can contribute and how universalization of elementary education can be realized. That is why we had requested distinguished educationists and research workers to write papers, indicating what and how research could be significant for the universalization programmes. These papers are in your hands I hope you will have sufficient time to discuss these papers, particularly of those who are present here.

We have also invited, as we had done on the last occasion, principal investigators who had received grants from the Council for doing research, to presen the progress reports of the work done by them. This conference may like to discuss these reports and also the work that is being done now under the grants of the Council.

The second report of the ERIC is in your hands It will be presented formally by Prof. R. P Singh for discussion. Next, there will be full discussion on universalization of elementary education and the specific papers that have been written in this context Our objective is that, as a result of these discussions it should be possible for us, first, to improve our own competencies in the field of educational research so that money invested in research is not wasted, and second, which is more important, to focus our immediate attention on educational research being done in the Council. Our attention, efforts, as well as money should be so directed as to influence the universalization of elementary education programmes, so far as research is concerned. If we are able to identify how and what research can contribute to the universalization of elementary education, it should then be possible for the Council to help individuals throughout the country, who are interested and are engaged, in one way or the other, in the universalization programme. There are many important issues in the field of education and all of us are naturally concerned with them May be, many of them are not necessarily researchable In this conference, we would like to play the role of a researcher not trying to focus attention on the niceties of research, like the theory, methodology, tools, techniques, data analysis and interpretation, but attempt to indicate precisely how and what kind of research could possibly be done. Research in the area of universalization of elementary education is possible, and it should particularly be done with a view to sharpening our own consciousness and facilitating our action in the desired direction.

We are today engaged in non-formal education, another national programme. Whether there is research or not, the country will go ahead and implement this programme. Both formal and non-formal systems are now trying to bring education to the millions of children who are left out of school This is a national commitment with which all of us are concerned. Therefore, the purpose of this Conference is also to discuss what research is possible that can help this programme of non-formal education. In this context, I wish to draw your attention to another fact which has bothered me in the past. Whenever we talk of research, we talk of quality research and each one of us has his own idea of quality research. However, if we tend to emphasize the best quality, better becomes at times the enemy of the good and we never really get any research done, simply because it is not the best research that can possibly be done. When we think of doing educational research, which is possible in the field of universalization of elementary education, we should keep in mind the different kinds and levels of research. For example, there should not be any hesitation in indicating that action research is as good a research in this case as fundamental research. Both are equally important to my mind. But what is more important in this conference is to focus our attention on what can be done immediately. I would not question the validity of research which will have its implications even 25 years hence That research is also useful. There are policy implications of universalization of education in our country. Suppose, we are successful in having all the children enrolled in schools in the course of next ten years and let us hope we are able to retain all of them in schools at least five years. Now imagine the impact of this on middle school education and the impact of middle school education in its turn on secondary education and, therefore, its impact on college and university education. Pupils will be coming out of schools in large numbers, knocking at the doors of higher level institutions thus creating an immediate problem of investment in expanding educational facilities at the higher level. It will also have impact on the quality of instruction at different levels of education. However, in the context of adult illiteracy, large number of children in the rural areas come from families where both the parents are illiterate. As against the rural children urban middle-class school children, belonging to families of office-goers, clerks and so on, definitely have an advantage, which is not just economic advantage. It is the advantage born out of cultural factor as well Now these kinds of researches are also useful and I am sure that it may thus be useful to continue to work on sociological, economical and psychological foundations as well as problems related to the 'culture' of education. However, the purpose of this conference will be lost if we tend to devote too much attention to these as against the problems which are facing us right now. We may find solutions tested on the basis of research so that we are sure of the direction in which we are moving, with the help of the kind of strategy we have evolved, or are going to evolve.

We are going to develop non-formal education, which needs preparation of instructional materials of various kinds, preparation of learning resource materials, use of mass media of communication, and so on. We could involve the local community as well, for example, in the preparation of instructional materials for the non-formal education sector This is a very desirable development. We need also immediately to look at the effectiveness of these and not only to speak of them. Research needs to be geared to make this good. How do we improve instructional materials ? What should be the criteria ? How do we improve the learning outcomes ? In my mind, questions are being raised about comparability, i e. whether this is not a second class education that we are going to provide through non-formal education These are the kinds of problems to which we should pay our attention and develop research accordingly. It is necessary for us, for example, to develop and coordinate a system throughout the country, because, as you know, India has pockets of efficiency as well as of inefficiency What we wish to really do is to improve the all round efficiency of our educational system. Nobody should blame the Government in so far as educational facilities or financial resources are concerned. What is lacking is human organization, human management and human endeavour to be able to utilize the resources that are available. How do we do this ? How do we develop a system ? We have frequent theoretical exercises. Much research needs to be done in these areas. For example, we have now taken up villages to test our own competencies and our own ideas so as to make education more meaningful and relevant for the village community. These are the kinds of research which ought to be debated and discussed at this conference and I hope that at the end of the conference, it will be possible for us to formulate our views and help in the development of some research in these areas.

BRIEF INTRODUCTION

Prof. R. C Das

AS THE DIRECTOR, NCERT just mentioned there is some improvement as you will see in the Second Report of the ERIC, not only in its get-up but also in content arrangements. Instead of merely listing the projects, the method and the major findings of each project have been briefly reported In the case of completed research projects they have also been classified The on-going projects (outside NCERT) have been listed which form the subject of discussion today. You will notice that these have been classified under various areas, like economics of education, educational problem of the weaker section, educational psychology, etc. This, I think, will also enable us to examine the projects area-wise and also comment on the areas of specific problems which need more attention than what they have been given until this day. These projects also indicate that the ERIC has laid more emphasis on the universalization on the elementary education for the weaker section and also on non-formal education. The projects that are in progress indicate that more attention has been given to these priority areas particularly during the last year. There are five projects on the problems of the weaker section and three projects on non-formal adult education We have a number of projects on primary education. There are two on women education. Still there is much room for the improvement of our work

As regards the conduct of the different sessions of the conference we may have the Chairman of each session by rotation from amongst the senior members Dr. N. Kar will be the Chairman of the afternoon session. Tomorrow's session before coffee will be chaired by Dr. Sachidanand and one following immediately after would be presided over by Dr. (Mrs) Pratibha Deo In the post-lunch session one will be chaired by Dr. Venkatasubramaniam and the other by Prof. H B. Majumdar.

This then in brief is the arrangement for the conference

New international economic order : Contribution of education

DR. P C CHUNDER, Union Minister for Education, Social Welfare and Culture, made a fervent plea to educationists all over the world and emphasized the role of education in the establishment of a new international economic order. In his valedictory address in connection with a week-long International Seminar organized in January 1979 jointly by the National Staff College for Educational Planners and Administrators, the International Institute for Educational Planning, Paris, and the Unesco Regional Office for Education in Asia and Oceanis, Bangkok. Thirty-two eminent educationists, economists, and sociologists from nine countries (Bangladesh, Hungary, Yugoslavia, Korea, Nepal, Singapore, Sri Lanka, Thailand and India) participated.

The seminar considered the implications of declaration on new economic order approved by the UN General Assembly in May 1974 and placed special emphasis on the role of education in imparting values and creating the climate necessary for a more rapid progress towards the New Order.

Some Observations

In the field of education the implications of the existing world order are glaring and verifiable. The inequitable distribution of material resources are reflected directly in the inequitable distribution of learning, educational, scientific and technological resources and expertise. All illiteracy is concentrated in the developing countries whereas all scientific and technological resources are owned by a few countries of the North. The United States, the USSR and Japan own 50 per cent of all the world's top scientific laboratories. In 12 countries of the North, 90 per cent of the world's research and development activities are carried on The polarization of educational resources and facilities in the North and illiteracy, poverty and ignorance in the South is a direct outcome of the inequities of the existing world economic order.

The global polarization of facilities and resources has, in turn, led to the rise of elitism (meritocracy, technocracy and bureaucracy) in the developing countries—mainly in the form of concentrating power and resources in the cities, on the upper classes educated in the West or Western-model formal systems at home, cultivating consumerism alien values and cultures, more at home in the west than in tune with their own predominantly rural and agrarian societies. Occupying the most strategic positions of decision-making as planners and politicians these elites tend to reproduce the same disparities at home that are born out of the existing world economic and at the global level. The educational and developmental policies formulated by these elites have tended to further perpetuate the disparities between the masses and the elites, between the rural and the urban, between the limited enclaves of industrialized sector and the vast non-industrialized sectors of the economy, between the young and the old, between the boys and the girls, between the formal and the non-formal systems of learning, between the traditional indigenous systems of learning, and technology and the Western systems In this respect, given the global situation the present educational system plays primarily a negative role.

The UN Second Development Decade has not made any visible dent on these aggravating disparities of the world. Instead, it has led to the continuation of the same old trends, both in the world economy and the world educational scene. The paradox of the situation lies in the fact that the higher the rate of educational growth and expansion in the developing countries the higher are the existing disparities both within their own countries and between the richer and the poorer countries as a whole.

Among others, the flow of resources and the brain-drain from the developing countries as the reverse transfer of resources to the developed countries has been estimated to be nearly equal to the flow of all technical aid and capital grant to the developing countries. The present international division of labour condemn the educational system of the developing countries to remain subjected to the needs of the developed world.

Technical assistance in the form of experts has proved too ineffective to help the developing countries build their own scientific, technological, research and development infrastructures. Much of the foreign aid flow is recycled to the developed countries in the form of salaries and consultancy service charges of the foreign experts.

What is most needed is a change in values, perhaps more among the developed than in developing countries, but necessary for all. It is the task of education to help in this change. Education in this context means not merely schooling, but life-long learning process including all its other aspects such as non-formal education and in formal education.

Education must provide requisite base for development and should provide the skills and knowledge needed therefor. Education must, therefore, include education for agriculture and for industry and for health, hygiene, nutrition, civic participation, etc. Education should also enable people to organize themselves against exploitation.

Such education can be provided only by recognizing the principles of participation. Participation by the people had often meant in the past nothing more than their 'voluntary' or free contribution of labour. Genuine participation had to go far beyond this, namely, participation in problem-identification, in planning, in decision-making and in implementation of the programmes affecting them in monitoring and evaluation and, above all, in equitable sharing of the benefits of the development. Such participation would mean a decentralized system of planning and administration.

Further, education programmes should be need-based. A need-based strategy of planning and programming of education should make education more relevant, meaningful and functional.

An effective two-way communication between researchers and people has to be established in order to make scientific research relevant to their needs. There is also the need to educate people in the honest utilization of science and technology, namely, for peaceful purposes and for the welfare of the people and not for exploitation

Education has also to play a major role in conscientizing people for disarmament and dismantling of military machines

The present education system has also contributed to failure by (a) mis-match between education and employment at all levels but especially at the second and the third levels ; (b) irrelevance of education to the needs of the society, particularly of the rural society , and (c) inability to provide even the basic minimum skills and knowledge to the vast majority of the people, many of whom continue to be illiterate.

A Few Major Recommendations

The developing countries must mobilize their local and regional educational resources for achieving solidarity against the present order by mutually cooperating to share the available resources in education, training and research through inter-change of experts, trainers, trainees, scholars and researchers Regional infrastructures such as research centres, scientific and technological laboratories, etc can be established by helping to evolve and develop appropriate science and technology base regionally

The flow of technical assistance to the developing countries should enable them to achieve self-reliance in science and technology by helping them to create their own research and development infrastructures and institutions rather than to remain perpetual intellectual colony and provincial outposts of Western science and technology metropolises.

The present international division of labour will need to be radically altered to enable the developing countries to build their own trained manpower and educational base at a faster rate. The UN system should sponsor studies on educational disparities on a global scale and disseminate their findings for use in the university curriculum for social sciences and education courses. These findings should be given the widest possible circulation through all the media and be propagated for mobilization of the broadest consensus of the world opinion.

National development strategy of each developing country should be appropriately oriented to narrowing the existing educational gap between different sections of its society and to narrowing the gap between education and work and between education and economy so as to build its own resource base economically as well as educationally, and scientifically as well as technologically.

It is necessary to integrate work and education at all levels so that the educated person has the requisite qualities to serve the community in a productive manner. While there is need for enlarging facilities for vocational education, planning of vocational courses should be decentralized. In view of the costs involved and rapid adjustments required, maximum use should be made of (a) on-the-spot training facilities available, and (b) existing facilities for providing vocational training.

NEWS FROM FIELD UNITS

Jammu & Kashmir

Orientation of Primary Teachers

THE NCERT organized an orientation course for the resource persons from different states to train the primary teachers in recent trends in elementary education with greater emphasis on universalization of elementary education, non-formal-education, socially useful productive work, examination reforms and methods of teaching in different subjects. It is expected that the resource persons from different states will organize similar programme for primary teachers.

Non-formal Education

The NCERT with the help of the teachers from Jammu and Kashmir State are preparing the instructional material for non-formal education in Urdu. The instructional material in Hindi is also under preparation. It is expected that the same will be ready by March 1979. Another workshop is likely to be organized in Srinagar The long-felt need of the state will thus be fulfilled and it is hoped that the part-time education centre will be greatly benefitted with these instructional material.

Bhubaneswar

Residential Primary Sevashram

In a vigorous drive to educate Adivasis, the state government plans to establish at least one Residential Primary Sevashram in each Grama Panchayat of 34 low literacy blocks of the state where the percentage of literacy is less than five during the sixth plan period. The students of the Residential Sevashrams would be provided with free lodging, boarding and free school materials. Besides, the government also proposes to set up one Residential High School in each of the 314 Blocks where such insitutions have not yet been opened.

Non-Formal Education

A training programme was organized by the Office of the Field Adviser, NCERT, Bhubaneswar at Dangadi on 18 and 19 December 1978. The Field Superviser and Field Instructors whose services could be utilized in running the ten Non-Formal Education Centres by this Office were oriented in the method of teaching, reading, and writing with the help of the *Primers* and the *Teacher's Handbook* prepared by the State Institute of Education, Orissa. Each Field Instructor was also supplied with eight copies of *Akshara Sikshya*, Part-I, 17 copies of Part-II and one copy of *Sikshak Sahayak Pustak* free of cost to be used in the centres. These copies were donated by the State Institute of Education, Orissa. The SIE also extended its ungrudging help by deputing a Lecturer to the venue of the Programme to orient the participants in using these books

Besides, the participants were given rudimentary idea on the following topics with the help of the local experts so that they might help the villagers of their own area and create a friendly feeling among the villagers : (i) Common ailments of children, their symptoms and remedy, (ii) Care of animals, (iii) Tribal welfare schemes, (iv) Government schemes to help our farmers, and (v) Cooperative developmental activities.

Science Exhibition

Under the auspices of the Jawaharlal Nehru University and the National Council of Educational Research and Training, New Delhi, the State Institute of Education, Orissa organized a state-level science exhibition at the DAV Aeronautic School in the campus of the Hindustan Aeronautics Limited at Sunabeda. It was inaugurated by the Education Minister of the State. The exhibits were selected for the competition on the basis of a pre-screening by the organizers of this exhibition. Hence the exhibits were very much related to the theme of this exhibition, i e. Science and Village. Two engineers of HAL and the Field Adviser worked as judges for selecting three best exhibits and three best demonstrators. The exhibits adjudged best were the working models of solar heater, wind-mill and low-cost incubator.

All India Educational Conference

Under the auspices of All India Federation of Educational Associations, the All Orissa Federation of Teachers' Organizations and Orissa Converted Government School Teachers' Association organized the 53rd All India Educational Conference at Barabati Stadium, Cuttack through 27 to 31 December 1978. The conference was inaugurated by Sri Nilamani Routray, Chief Minister of Orissa. A symposium on 'Promoting programmes of non-formal education' and a National Book Exhibition had been arranged on this occasion. Besides, there were lectures and deliberations on different stages and aspects of education, educational administration, educational planning and policy, youth welfare and teachers' status and welfare. Many eminent educationists from the different parts of the country participated in these deliberations □□

Book Reviews

The American Fictional Hero. B. RAMACHANDRA RAO. Bahari Publications Pvt Ltd, New Delhi, 1979 Pp 96. Price : Rs. 32 00

AN AVERAGE American as perceived by an average Indian is tall, fair, wealthy and rugged. That he is rich is known because of the dollars he can afford to buy old palaces, bridges, paintings, artwork, etc. — an interest which he has cultivated to appear cultured only to find to his utter dismay that he has been thoroughly misunderstood. To the cultivated and well-informed authors in England, American literary creations were a subject of mild suspicion. One comes across references to the quality of English language Americans use and the jocular observations like "they speak English" or "they too write English". The popular American authors known to an average Indian reader are Earle Stanley Gardner, Arthur Miller, Mark Twain, etc. of whom Poe, Hawthorne, Steinbeck and Hemingway are positively well-known. Several universities offer American literature at their Master's level course in English literature as an optional paper in which a few American classics are taught as though they were freaks. But one thing is certain. The American democracy, their faith in the individual and open society are few of those characteristics besides the "land of opportunity" which brings many an Indian close to them. A section of politically conscious Indians has not been too happy with several of their policies and organizations more particularly, their role in interfering with the Third World countries and anyone admiring them for anything suffers from a sense of guilt—a fact which had to be publicly demonstrated by an Indian M. P. in Parliament not in too distant past.

The fact remains that Americans have literature with distinctive characteristics. Their fiction, as Maxwell put it in his book *American Fiction* (p 267), "represents a society in every way more mobile, fundamentally serial in nature, its characteristic drama the struggle to contain its transitions, to perpetuate in changed and changing circumstances the articles of stability. ..." The American fictional hero unlike the hero in a Western is a product of American requirements that are basically so different from their Indian counterparts that an average educated Indian would be bewildered by the first impact the former has on him.

The present publication is an attempt to study the image of the American fictional hero in the novels of Fitzgerald, Thomas Wolfe, James T. Farrell, Dos Passos, and Steinbeck. It is based on the author's Ph. D. dissertation who made a deliberate choice to study a convenient middle ground. The period of these novelists is between the two world wars. The American scene after the Second World War has changed considerably and the Americans' international outlook has more recently undergone a sort of chemical transformation. They have been subjected to severe humiliations by what we call 'The Arab Invasion' and their currency has nosedived in the world market. Their military prowess stands challenged and their interventions have been unwelcome. But before all this happened, American society between the two world wars was witnessing internal conflicts, social and economic changes and reacting to a world unknown to them These novelists, therefore, are typically American and their heroes represent a fraction of American middle-class crises These novelists belong to the period when sensitive Americans had started looking within and were trying to identify values that would sustain them in an eternally changing world They were exploring their new avenues of perception of reality and making appropriate adjustments.

All these five novelists viewed critically have chronicled contemporary life and describe "the experience of existence" They have their distinctive gifts. Of these Fitzgerald had a delicate sensibility and Steinbeck a flair for 'moral integrity' It is interesting to note that unlike the known image of an enterprising and rugged American cine-hero (the Hemingway-type) the fictional heroes withdraw into their own shells and sink into obscurity a little too easily than one would have suspected them to be capable of. Their heroes get disillusioned, have little or no charm for the 'dirty' lucre, philosophies on mundane matters, are disinterested in life and are in general lonely. They think, romanticize and sort of invert the American dream. These novels raise questions, hand-out surmises, and suggest that the best solutions lie when social institutions are improved, reconstructed and are offered new sets of values.

The present publication is thought-provoking, informative and well-designed. It does not suffer from verbosity and pretensions. A good publication indeed.

SUJATA RAGHAVA, Research Scholar, Agra University

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Educational System of India · An Econometric Study SHRI PRAKASH Concept Publishing Co., Delhi, 1978, Pp 269 Price . Rs 42.00

SEVERAL BOOKS have come out of the Indian press of late with the same and similar titles. But few of them can compete with this book under review in content. There are few studies in India where econometric techniques have been applied to educational sector, and the author should be congratulated for this excellent econometric study. *Educational System of India* is a revised and enlarged version of the author's Ph.D. thesis submitted to the Saugar University

After briefly discussing the problems involved in educational planning in a system of dynamic general equilibrium in Chapter 1, the author presents a critical evaluation of the existing approaches to educational planning : the rate of return approach in Chaptar 2, and the various methods of manpower requirements approach—productivity method and the input-output method—in Chapter 3. In fact, these 'methods' represent change in assumptions—fixed coefficients and the varying coefficients. In Chapter 4 the author separately evaluates the mathematical models of educational planning—the Tinbergen-Correa-Boss model, the Stone's input-output model, and the paidiometric type Armitage-Smith model. All these three models are nothing but the manpower requirements models in mathematical terms with marginal modifications. To make the review of the models complete, the author should have added a section on evaluation of the programming models of Bowles, Adelman and Benard, which are also nothing but manpower requirements models constructed with the technique of programming.

The rest of the book is devoted to empirical work. Age-Specific Model (ASM) and Iterative Model (IM) of the Markov type are applied to Indian educational system for 15 years (1951-1965), and the results are presented in great detail in Chapter 5. According to the ASM, enrolments in different levels of education are directly related to the population of different age-groups and accordingly enrolment probabilities are worked out According to the IM, enrolments in level *k* in year *t* are directly related to enrolments in level *k*-1 in year *t*-1, and accordingly, transition coefficients are worked out allowing for drop-outs and repetition. It is found from the results that the IM explains Indian educational system better than the ASM. A critical evaluation of the two models pointing out the relative merits and weaknesses of each model should also have been made.

An analysis of demand for education in India is presented in Chapters 6, 7, and 8. Systematic influence of per capita income and demographic factors such as growth in population—both in size and structure by age and sex—on education at various levels/types is estimated by fitting linear regression model in Chapter 6. Demand relations for different levels/types at higher level have been derived in Chapter 7, using the data related to the students of the Saugar University during academic years 1968-69, 1969-70, and 1970-71. Significant influence of the socio-economic environment—parental occupation, parental income, intellectual ability and the interaction between these factors—on the demand for higher education is found out using analysis of variance.

The author made projections into the future of demand for education in India in Chapter 8. Projections have been made by ASM and IM While projecting by ASM, three alternative methods have been adopted · (a) the trend analysis of enrolment probabilities, (b) regression of enrolment probabilities on real per capita income, and (c) regression of the number of students of each of the age-groups on the real per capita income and population of the given age-groups. Using IM another set of projections have been worked out. The projection period is five years (1975 to 1980). Growth rates have also been calculated for enrolments at different levels/types. According to the ASM, the rate of growth in enrolments in school education will be higher than that in higher education, while the IM gives just the opposite conclusion. Since the experience (1951-65) shows that the IM explains better than the ASM the growth in Indian education—a conclusion drawn from Chapter 5—the author rightly prefers the demand projections based on the IM to the projections based on the ASM

Costs of education per pupil have been calculated in Chapter 9. Considering the pass ratio as the input-output ratio, and the teacher-pupil ratio as the output-input ratio, estimation of these ratios has been attempted Unit costs of education have been worked out at constant prices of 1960-61. Very few people (e.g., H.N. Pandit, *Investment in Educa-*

tion : Size, Sources and Effectiveness, Unesco, IIEP Occasional Paper No 43, 1976) attempted estimation of costs of education at constant prices for obvious reasons The Robbins Commission on Higher Education (*Report of the Higher Education*, HMSO, London, 1963) clearly pointed out that there was no accurate method of expressing the expenditures on education in terms of constant prices, because no price indices are available which properly correspond to the individual components of the educational budget. In fact any attempt to calculate costs of education at constant prices cannot be justified if the general price indices are used for this purpose. The author does the same with no reservations.

Chapter 10 is devoted to a brief review of the Indian education particularly with respect to enrolment targets and achievements in the first four five-year plans as against the demand for manpower.

Apart from these 10 chapters, the book has a small preface in the beginning, a small section at the end containing the main conclusions of the work, a six-page bibliography and an index. The work is excellently done and the book is neatly printed.

JANDHYALA B. G. TILAK, Institute of Economic Growth, University of Delhi.

☐

Gandhi Today J. D. SETHI. Vikas Publishing House, Pvt. Ltd., New Delhi, 1978, Pp. 211.

THE BOOK deals with comprehensive revalidation of Gandhi's philosophy. The author has tried to show two main things. First, Gandhi was equalitarian in his approach than any Marxist could have been, and secondly, he was alone among the leaders of the freedom movements of the colonial world, now called the Third World, to have kept the capitalists on the side of the freedom movement but against the imperialists He has suggested a novel system of trusteeship for the benefit of the people in general as well as for the redemption of the capitalists.

The first two chapters are more or less of an introductory nature and deal with Gandhi's basic conceptual framework and approach in historical perspective. All interpretations of Gandhiji have to be tested against his conceptual framework. Gandhi was not a system builder, but he had a complete scheme of concepts on the basis of which an appropriate and a most modern model of economic and political development could be built. However, there is no finality in the Gandhian approach when formulating such a model. This is because Gandhian concepts are not absolute Almost all his major concepts are relativistic and dialectical and at a higher level of abstraction, ontological. That is why Gandhi never felt embarrassed about consistency between his concepts and reality. Gandhiji himself kept on modifying, elaborating and enriching his own concepts on the basis of his experience. Nevertheless, there are few central concepts around which the whole Gandhian system revolves. According to Dr. Sethi these are Truth, Non-violence, Swadeshi, Satyagraha, Equality and Bread Labour. Chapter 3 deals with the theories of technical progress of the various schools of thought, particularly Neo-classical, Keynesian and Marxian. These theories are contrasted with those of Gandhi to show that whereas the former are subjected to technological determinism the Gandhian theory remains non-deterministic. Chapter four mentions about the relationship between technology, society and economy in the light of the problems thrown up by the modern industrial society as well as the problems of socio-economic development of poor countries. The author has attempted to show that all modern technologies would be acceptable to Gandhiji if they were consistent with his conceptual framework. Chapter5 brings out the elitist character of Indian education following the economy. It is shown how modern Indian education entirely rests on a principle which Gandhiji denounced long ago No wonder the greater educated emptiness of our educationists and elite classes has become the greatest threat to our society. Chapter 6 deals with the principle of trusteeship which Gandhiji put forward as a grand alternative to all other modern economic organizations. The last chapter brings about the points of convergence and divergence between Mao and Gandhi.

The book is highly useful and prove an asset to all those working in the field of research and for the development of Indian society.

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